

AMERICAN
ARTISAN

AUGUST 1957

Contents Page 4

..The Magazine of

RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING • SHEET METAL CONTRACTING

BIG MARKET for warm air heating in
new armory building program 47

COOLING PROBLEMS developing
from excess latent heat sources
examined 64

BLANKET MAILING of heating
standards card starts promotion
program rolling 50



**"Don't forget
this
Field Control, lad.**

**No heating plant
works its best
without
one"**

Every day, new-comers to the heating business are being taught an old lesson: That there is no substitute for good workmanship or good products. And for a score of years dealers have numbered Field Draft Controls among the products that are good, and for which there is no substitute. We are proud to have earned the good will of so many dealers for so many years.



You have put your faith in **Field** *more than 15,000,000 times*



FIELD CONTROL DIVISION of H. D. CONKEY & COMPANY, MENDOTA, ILLINOIS

Affiliates: CONCO BUILDING PRODUCTS, INC. • Brick, Tile, Stone CONCO MATERIALS HANDLING DIVISION • Cranes, Hoists

REPRESENTED IN CANADA BY ONTOR LABORATORY LTD., 111 TYCOS DRIVE, TORONTO 10, ONTARIO



You get more **out** when you put this filter in

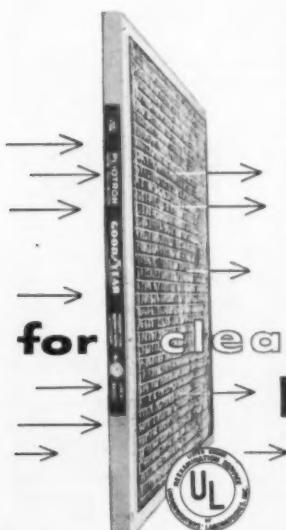
You sell a lot more than solid satisfaction in PLIOTRON installations. Rare are the profit-eating "call-backs" for adjustment. Almost invariably you'll be in for some repeat business. And the way satisfied customers tell others about these super-filters, you'll often collect from some of their friends as well.

For filter-users really appreciate the way PLIOTRON units outperform ordinary air filters. Because they're not just surface loaders—but depth-loaders—they capture up to 5 times as many fine dirt particles as ordinary filters. They serve far longer before

they're loaded. Even then, a quick bath restores them to full efficiency.

Standout performance like this—eliminating filter troubles long common in many homes, offices, stores and plants—has meant a rapidly growing popularity for PLIOTRON filters. And naturally, a lot of this popularity rubs off on the men who have these filters to install.

So make sure you collect in full—and keep collecting—on every new-filter job. Just recommend and install PLIOTRON filters—every time. For details, write Goodyear, P. O. Box 288, Akron, Ohio.



for cleaner air everywhere—

PLIOTRON AIR FILTER BY
GOOD YEAR

THE GREATEST NAME IN RUBBER

Pliotron—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

AMERICAN ARTISAN

AUGUST 1957

FEATURES

"Comfort Engineering" Can Boost Warm Air Market	44
Armory Program Opens New Door for Heating Dealers	47
Lead Off Standards Promotion with Blanket Mailing	50
Perimeter Systems Heat Modern "Clustered" Classrooms . .	52
Wholesaler Spreads the Standards Story	56
Mobile Lab Measures Thermal Lag in Concrete Floor	58
Aim Cooling Promotion at Proper Target	62
Latent Heat Figures in Cooling Load Calculations	64
Experience Pays Off for "Seller-Owner-User" Dealers	68
Cooling Wet Heat Home—Challenge to Dealer's Skill	70
How To Make a 90 Deg Stack Boot Fitting	73
Lead-Coated Copper Solves Flashing Problem	76
Put the Banker on Your Team	78
Make Job Signs Symbolize Quality Work	94
FTC Attacks False Advertising of Cooling	98

BRIEFS

Black Stainless Steel Adds Contrast to Architecture	55
Sheet Metal Workers, Insulators Sign Agreement	61
Proposal-Contract Form Spells Out Sale Terms	67
Five Percent of Building Cost Goes for Heating	80

DEPARTMENTS

The Editor's Notebook	6
What's Happening — Including Washington Letter	19
Editorial: Bright Star on the Profit Horizon	43
Hugh Reid's Pattern Problem	73
Idea Exchange for Dealers and Contractors	94
You and the Law	98
What the Associations Are Doing	102
Equipment Developments	116
New Literature	140
We Hear That	146
Wholesaler Doings	153
Merchandising Ideas	156
Appointments	158
Index to Advertisers	164

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RESIDENTIAL AIR CONDITIONING

WARM AIR HEATING

SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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MUELLER CLIMATROL SALES CLIP...

CLIMATE CONTROL FOR HEALTHFUL LIVING



**Mueller Climatrol announces
BIGGEST VALUE IN HEATING**

EFFICIENT

Better air "scrubbing action" with
knobbed surface of heat exchanger

ECONOMICAL

Faster handling and installation
— it's pre-assembled, pre-wired

RUGGED

Cast iron deep slotted burners,
husky heat exchanger, solid casing



Type 130-131 sectional
gas-fired highboys

Never before such high quality at this economy price—the latest in Mueller Climatrol's sensational Suburbanaire* line. This newly designed gas-fired highboy is packed with features all its own, including a knobbed surface heat exchanger that greatly increases efficiency by increasing "scrubbing action" of air, therefore giving better heat exchange. The 130-131 is a sure bet to set the season's sales pace. PLACE YOUR ORDER NOW!

**Signs like these sell...
bring customers your way**

Only one part of Mueller Climatrol's extensive merchandising aid program, these new high-powered but low-cost signs are real attention-winners. Both feature the sparkling face of Cathy Climatrol . . . tie in with Mueller Climatrol's big national campaign . . . establish you as your city's number one source of Mueller Climatrol heating and air conditioning. They're good 24-hour-a-day salesmen . . . you'll want them working for you.



KING-SIZE HIGHWAY SIGN is 2 x 4
feet, stands out by day, has reflect-
orized finish for night identification.



HOUSE INSTALLATION SIGN
puts your name out in front —
reaches future prospects.

Although Mueller Climatrol has always led the industry in forward-thinking research and development, in 1957 the company is centralizing and more than doubling its engineering, research and laboratory facilities. This expansion is in keeping with the booming demand for Mueller Climatrol heating and cooling equipment, and anticipates the requirements of continued future growth.

Mueller Climatrol Progress Flash!

Mueller Climatrol

2030 W. Oklahoma Ave. • Milwaukee 15, Wis.

*Trademark

the editor's notebook

Thumbing Through This Month's Artisan

...we harness the power of the Standards for Rating Heating Systems presented last month in a special section, with a few suggestions about introducing home owners to the non-technical standards. We find that a *Blanket Mailing of Standards Cards Identifies You as Quality Dealer*. We find in the article a suggested letter, especially prepared to accompany the standards card in a comprehensive mailing as a first step in a promotion built around the heating standards. We also note price lists for reprints of the standards cards, and a handy coupon for ordering quantities.

Heating

...we go along with the Mobile Laboratory in its search for unusual heating systems, visiting a one-story masonry home where our *Heating Test Measures Thermal Lag in Concrete Floor Panel System* in which warm air is forced from the oil-fired furnace through a long supply trunk duct which feeds hollow cores in a concrete floor, and back through adjacent cores into the return trunk duct. We note that the closed circulation system (with no supply or return openings) provides acceptable temperature differences on a mild winter day but we find some discomforts due to thermal lag and inadequate burner operation.

Flashing

...and we watch a sheet metal contractor come to the aid of an architect

complete selection



like Nu-Way oil burners

You can cover the whole waterfront of residential and commercial oil burner requirements with the Nu-Way line.

Nine models bracket fuel consumptions ranging from .65 to 33.00 g.p.h. And, each model is designed to deliver high efficiency over a wide firing range. A complete selection of flange and adjustable pedestal mounts is further insurance that Nu-Way is the only name you need to know in fine oil burners. Nu-Way Corporation, Rock Island, Illinois.



the editor's notebook

(continued)

who was hesitant about using distinctive copper flashing for a public library, as a *Lead-Coated Flashing Job Solves Exterior Decorating Problems*. We observe the modern procedures employed in installing flashing for metal casement window sills, gravel stops and coping cover to provide not only weather protection but also a very attractive addition to the decorating scheme, with 1200 lb of lead-coated 16 oz. copper sheet.

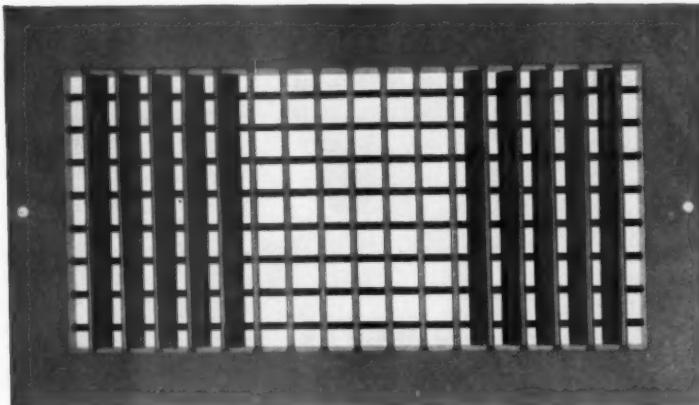
Cooling

...and we see how one contractor overcomes each phase of the difficult problems involved in *Cooling a Wet Heat Home*, when the home owner decided to add cooling after the building was erected and a wet heat system installed. We see the problems multiplied by the typical complexities of multi-level buildings, cathedral type and dropped plastic ceilings, limited attic space and large glass areas, and we note the efficiency of their solutions by a dealer who handles the installation as a routine job.

How to Choose The Right Employee

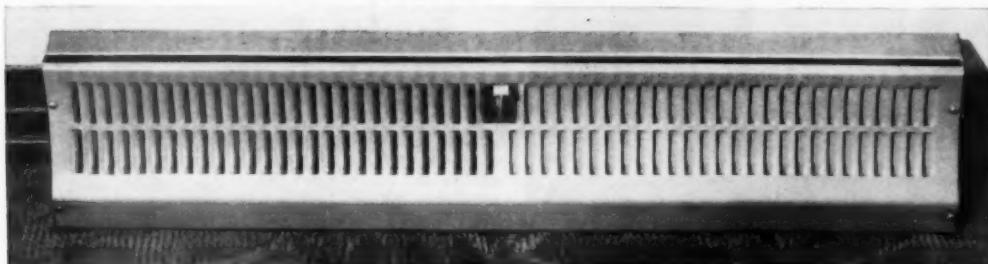
WHAT KIND of person makes the best employee? This is a question that often must wait months or even years to determine. In the meantime, a lot of money can be wasted while trying to find out. A potentially good employee may be slow to show his abilities and overall worth to the company. Sometimes these people, for one reason or another, are released before their real value is recognized. Sometimes a potentially poor employee is retained far too long for his own and

MIDCO *Excels* IN PERIMETER REGISTERS

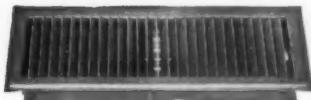


with a
high styled line
in sizes
to meet every need.

No. VHD THERMOFLEX COMMERCIAL REGISTER AND GRILLE. A register that does everything better. Is aero dynamically correct with 11/16 inch adjustable vanes that give positive control of throw and flow.



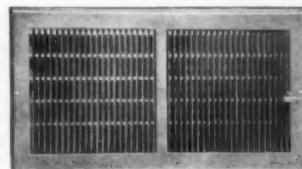
No. 900 OPEN TOP BASEBOARD DIFFUSER. With the grilled front which delivers air to left and right and more air than any other diffuser of similar size. Lengths 17, 24, 30 and 36 inches. Also made with closed top.



No. 512 PERIMETER FLOOR REGISTER

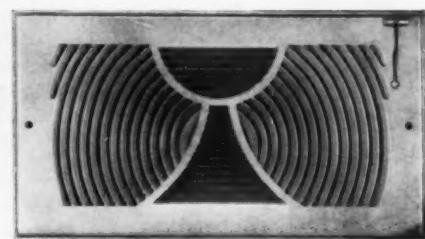
Sizes:

2 1/4 x 10	4 x 10	6 x 10
2 1/4 x 12	4 x 12	6 x 12
2 1/4 x 14	4 x 14	6 x 14



No. 30 1/4" VERTICAL FIN SIDEWALL DIFFUSER

Comes in any size from 6 x 4 up. Also made with 1/2" vertical fins in similar sizes.



No. 800 SIDEWALL PERIMETER DIFFUSER

The most efficient and attractive sidewall perimeter register on the market, with volume adjustment control and furnished in 10" x 6", 12" x 6" and 14" x 6". Patent No. D179-140.



MIDCO

REGISTER CORPORATION

1059 GRAND AVE. ST. PAUL 5, MINN.

Makers of over 6000 different register units

the editor's notebook

(continued)

the company's welfare. Much of this guesswork can be eliminated now — and free. Write to Industrial Psychology, Inc., 3442 E. Grant Rd., Tucson 6, Ariz. for the program outlined in "Hiring Manuals for the Job-Tests." This program was developed from information based on research in over 1500 companies during the past 10 years. Three hiring manuals are published — clerical, mechanical and key personnel. A free sample of any one of the three manuals is offered to company supervisors. Requests must be sent on company letterheads.

Each hiring manual gives instructions for conducting scoring and interpreting the aptitude, intelligence, personality and biography tests. Everything is done within the company. The manual also contains two bulletins which discuss interviewing and how to combine the test and interview results to hire the best applicant, or transfer or promote the best worker in the company.

Testing time is short — about 15 minutes for both tests and interviews. The manual indicates where time can be best spent in terms of tests and interviews.

Forecasts Swing To Older Worker

THERE WAS a day when a person over 40 years old applying for a job was considered to be too old. This isn't the case any longer, according to Rocco C. Siciliano, assistant secretary of labor, who says that by 1965 the major source of the labor supply will be persons 45 years of age or older. Mr. Siciliano said:

"The low birth rate of the 30's will produce an actual deficiency of 700,000 persons

the editor's notebook

(continued)

in the 24 to 34 age group by 1965.

"Ten million persons will be added to the labor force in the decade 1955-65 if the gross national product is kept to the needed economic level.

"Of the 10,000,000 additional workers, four and one-half million will be in the 16-24 age group; one-half million in the 24-44 age group, and 5,000,000 over 45 years of age."

Mr. Siciliano noted that the building industry was the largest single industrial employer of labor. He said: "It is obvious that what is called the 'mature worker' will have to remain productive for a longer period than is now customary. Experience has shown that age does not mean a lessening of general efficiency. Older workers are frequently more efficient than those in a lower age group, and absenteeism, that bugaboo of industry, is in no way more prevalent among the over 45's than in the lower age group. Industry must get rid of some of the myths surrounding the older generation of workers . . . fears of the older worker have their basis in fantasy, not fact."

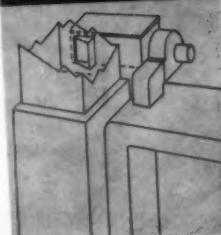
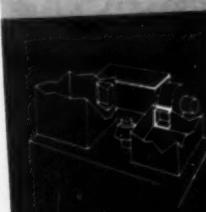
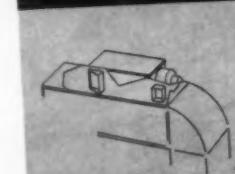
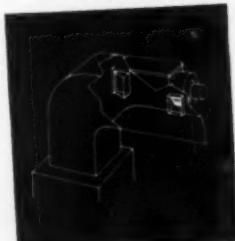
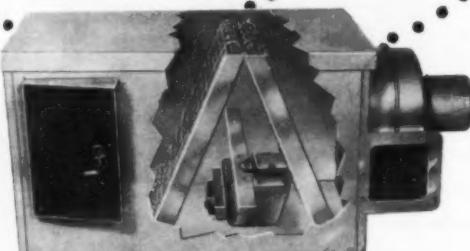
Uses Cable Address To Promote Industry

I WAS quite pleased recently to receive another letter from Geoffrey Crockford of Crockford and Robertson, Ltd., Melbourne, Australia, in which he told me about the rapidly growing warm air heating industry in his city. I noted that Geoffrey had redesigned his letterhead to dramatically call attention to the services offered by his firm. But the part of the letterhead that caught my eye the most was the use of his telegram and cable address. He has taken the word

NOW! • • • • •

ADAPT THE UNIT

to the Warm Air System
NOT THE SYSTEM TO THE UNIT!



Little Giant PUMP COMPANY

Division of Little Giant Vaporizer Co., Inc.
5101 N. Classen Blvd., Oklahoma City, Okla.



THE "INSIDE STORY"
The heart of Little Giant Humidifiers is the famous Little Giant Vaporizer. Simple in construction and never needing lubrication, it operates quietly and efficiently. Unconditionally guaranteed for one year.



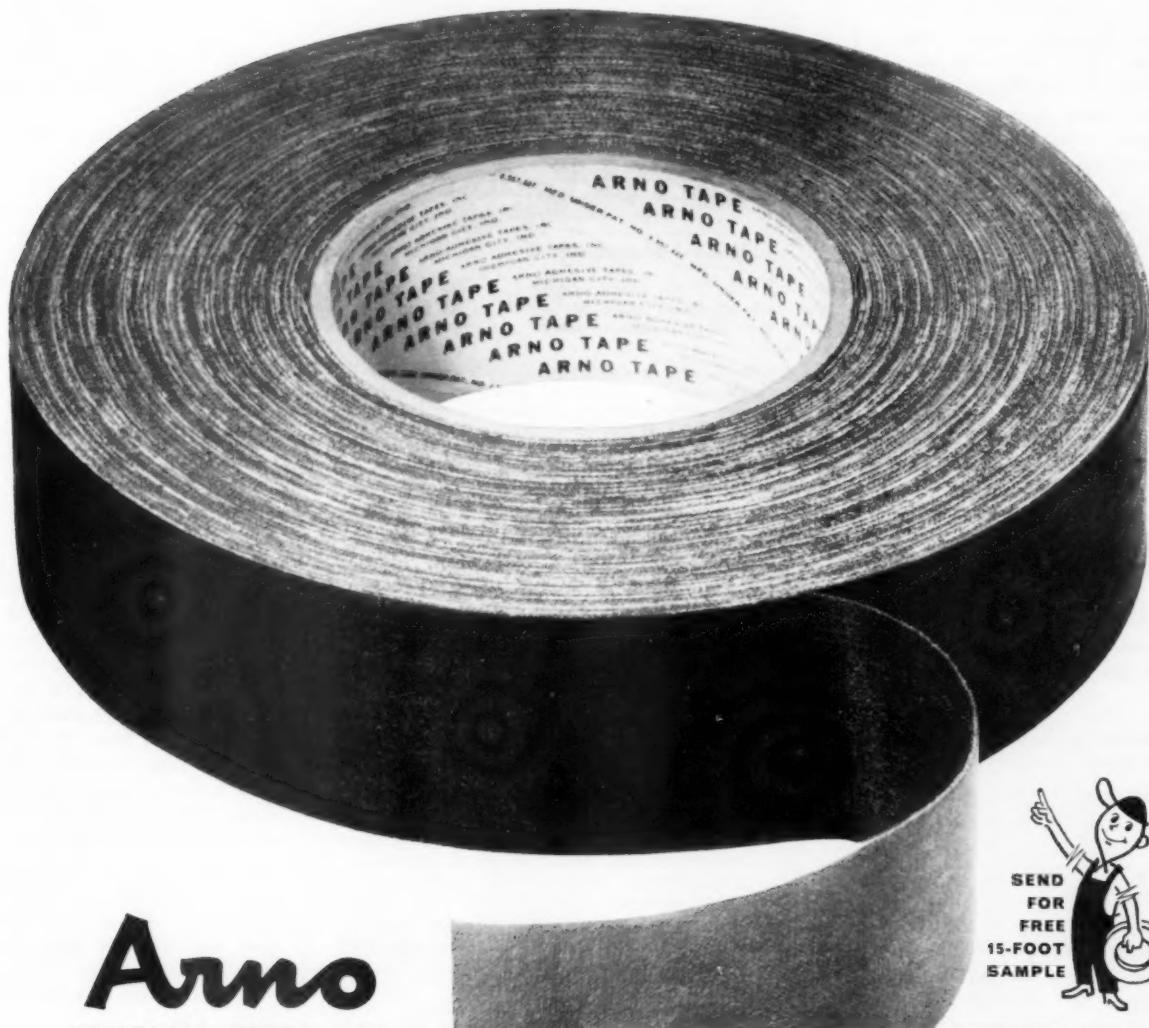
This roll of ARNO DUCTAPE increased warm air delivery 21%

When you talk about savings such as this, your customers listen with both ears: A special test made on an average warm air furnace installation showed that warm air delivery increased 21% when the duct joints were sealed with Arno Ductape!

The test was made by using standard precision instruments that measure air velocities and static pressures. Before the joints were sealed, seven register openings delivered 1480 cubic feet of warm air per minute. After applying Arno Ductape to all accessible joints, the delivered warm air increased to 1785 C.F.M.—21% more! *

Ductape sticks instantly and permanently to metal, paper, wood, and plastic. Its holding power is not affected by heat, cold or moisture. So easy to apply . . . so economical. Send for free sample and try it yourself.

**Complete details of test upon request*



Arno

ADHESIVE TAPES, INC.

Subsidiary of The Scholl Mfg. Co., Inc.

SALES OFFICES

Atlanta—1272 Westridge Rd., S.W.
Detroit—12915 W. Eight Mile Rd.
Fort Worth—2724 Tillary St.
Los Angeles—3225 East 46th St.
Minneapolis—401 Plymouth Ave.
New York—104 West 17th St.

ARNO ADHESIVE TAPES, INC., 4110 Ohio St., Michigan City, Ind.

Please send me a free 15-ft. sample flame-resistant non flame-resistant . . . I am a Distributor Contractor

Name _____

Company _____

Address _____

City _____ State _____



the editor's notebook

(continued)

"Warmair" as the code name for his company. This is really putting the industry's name to work in a fine manner. To me this becomes a challenge to all members of the American warm air heating industry. How about putting our initiative to work and developing some code names that will help keep our industry's name before the public at every turn? When a fancy or trick slogan that could be used as a code name comes to your mind, drop me a line and let me know what it is. I'll publish it and maybe we'll uncover a term that will become an everyday word with the housewife and breadwinner.

When Does Luxury Become Necessity?

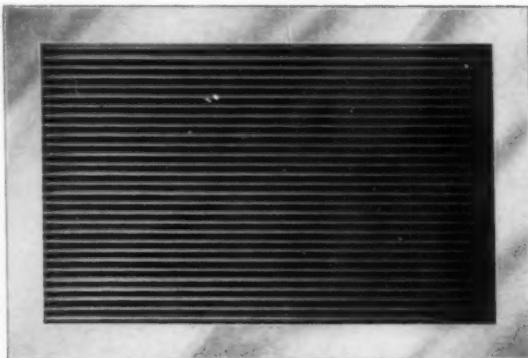
RECENTLY the Chicago American published in its "Comic Dictionary" department this definition for air conditioning: "A luxury that immediately becomes a necessity when your neighbor gets it." How true! It's also a good sales point that can mean more sales in a neighborhood.

Forecasts Developments In Steel Industry

THE AMERICAN steel industry, which has added over 41 million tons to its production capacity since World War II at a cost of about \$8 billion, will need to add another 50 million tons in the next 18 years, according to Roger M. Blough, board chairman, U. S. Steel Corp.

Because of this outlook, he said, the most difficult and persistent problem facing the management of steel companies is not temporary drops in steel production, but the problem of striving to keep pace with "the enormous demand" for steel ahead.

ALL NEW! ALL ALUMINUM! ALL EXCLUSIVE!



New A-J All-Aluminum No-Vision Grille

Another first in the field for A-J! This new extruded all-aluminum no-vision grille is the first of its kind . . . a grille that offers exclusive quality features never before available!

Imagine the beauty of this all-aluminum construction. Picture how its striking, modern look blends so perfectly with contemporary interior designs. Think of the ease of upkeep — corrosion and rust can never detract from its lifetime beauty. Because of the lightweight characteristics of aluminum, this new A-J Grille provides maximum free area (approximately 70%) with minimum weight.

The entire unit reflects quality in every detail of its construction. The extruded V-bars (of .044 aluminum) are spaced three to the inch, making the grille completely sight-proof. The "B" frame (.050 aluminum) has perfectly mitered corners which are securely fastened and locked mechanically — there's no surface blemish to mar its attractive appearance. Rims have countersunk screw holes for fastening to door or partition. Fastening screws are furnished with each unit. By utilizing an auxiliary frame (also of extruded aluminum) the grille span can be adjusted from 1 1/4" to 2 1/8" in depth.

CHOICE OF FINISHES

Standard mill finish is provided unless otherwise specified. Anodized or polished finishes are available. If non-standard finishes are desired, please consult the factory for prices.

NOTE: the new A-J Aluminum Grille is also available with an "A" style channel frame of .050 sheet aluminum. If ordered in this manner, installer provides molding or stops.

This new A-J Grille is produced in standard sizes. For more information write A-J Manufacturing Company, Dept. A-8, 3601 E. 18th St., Kansas City 27, Mo.

FREE CATALOG

listing, describing and pricing
1,000 types and sizes of grilles,
registers, etc.

A-J Manufacturing Co.

Dept. A-8 3601 E. 18th St., Kansas City 27, Mo.

the editor's notebook

(continued)

"But even more important to our economy than new plant expenditures to meet the growing demand for steel may well be the fruits that will come from research in steel within the next few years," Mr. Blough said. He added that "in the opinion of some of us, we are on the threshold of a major breakthrough on certain fronts. Scientists are working toward many types of steel with such distinctive qualities as to merit being called entirely new metals."

Installment Buying Can Up Your Sales

A RECENT issue of "Notes and Quotes," a monthly letter mailed by Demmler Bros. Co., Pittsburgh wholesaler, to all of its customers, brought out an often overlooked sales aid — the use of installment buying. I believe the points made are very well presented and worth repeating. Here is what Demmler Bros. had to say about this important subject:

"Recently, one of our customers who operates a sizeable sheet metal shop was talking to us about a new piece of equipment which he would like to have. He said he was sure it would save him a lot of money but he didn't want to lay out so much cash at one time. We told him that we could arrange financing for him through a bank. He replied that this was just what he had in mind but that no one had advised him that we had such a plan.

"The next time our sales representative was in the office we asked him why he had never mentioned financing to this customer. 'Well,' responded our representative, 'he always discounts his bills and seems to have plenty of capital so I was afraid

Seventy
Five
Feet
of
Pittsburgh
Lock...

in sixty seconds!

with the **LOCKFORMER**

SUPER-SPEED

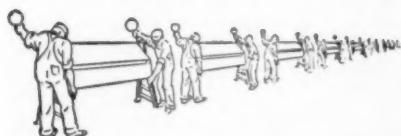
Here's high speed fabrication without any sacrifice of day-in, day-out dependability. The Super-Speed turns out an 8 foot Pittsburgh in less than seven seconds . . . and it's built to **keep on** turning 'em out at that rate, all day long, all week long, all year long!

There never was a time when savings in labor time were more important. There never was a time when a Super-Speed could pay for itself more quickly. Why settle for anything less?

Write
for the
LOCKFORMER
catalog



One Man With A Super-Speed "20" Makes More
Pittsburgh Locks Than Forty Men With Twenty Brakes



THE LOCKFORMER CO.

4615 WEST ROOSEVELT ROAD • CHICAGO 50, ILLINOIS

the editor's notebook

(continued)

if I suggested installment financing, he might be insulted. This set us wondering how much business you and we are losing because we are afraid to mention installment financing for fear of insulting someone.

"Bankers will tell you that this idea of 'insulting people' is all wrong. They say that even though people are prosperous, they don't necessarily have the ready cash or savings available to make major purchases. So, they will appreciate it if you make it easy for them by suggesting that they finance the purchase. If they do happen to have the cash available, instead of being insulted they will take pride in telling you that they don't need any financial assistance. Installment financing has become the accepted way of selling automobiles, appliances and other high priced items. Why, then, shouldn't it apply equally well to new heating systems, metal roofs and the other products of our industry?"

Dealer Training Pays Off in Sales

ONE OF THE advantages of sales training programs was brought out recently when I was talking with George M. Hase, manager of sales engineering, Mueller-Climatrol. Mr. Hase told me that a check of the company's books showed that 79 percent of the equipment sold during 1956 was handled by dealers who had attended the schools set up. He pointed out that training programs are necessary to provide the dealer with the increased technical information and education he needs to keep pace with today's advanced technology, product complexity and installation techniques. I agree

put
Extra-Profits
in your
pocket
with

**ELGEN All-Tite
VANE RUNNERS**
NOW IN COILS!

"engineer-approved"

OPEN THIS END
PULL HERE THIS END OF THE BOX

**Elgen Vane and Manuf. Co. Inc.
ELGEN 3010 THE
VANE RUNNERS
FOR HEATING, AIR CONDITIONING,
REFRIGERATION, INDUSTRIAL,
COMMERCIAL AND RESIDENTIAL**

**THE EASIEST
AND
QUICKEST WAY
EVER DEVISED**

for installing single or
double blade turning
vanes in square el-
bows. No special
tools required.

New production machinery of our own exclusive design, now enables us to produce button type Elgen All-Tite vane runners in continuous coils, effecting a savings in your cost per job.

COILED ELGEN ALL-TITE VANE RUNNERS MEANS . . .

- **Less Waste!** Waste pieces due to short ends are a thing of the past. Vane runner metal is coiled in 100 foot lengths, you just pull out the exact footage needed.
- **Easier Storage!** Each coil weighs approximately 50 lbs. and is packed in a box 28" x 28" x 5". Box fits easily under bench or against wall.
- **Easier Handling!** No loose pieces lying around to get in the way or collect dirt.
- **Unrolls absolutely flat!** Vane runner metal emerges from the box at bench height . . . absolutely flat . . . ready for use.

TWO MORE ENGINEER-APPROVED ELGEN PRODUCTS THAT SAVE YOU TIME AND MONEY



ELGEN SILENT DUCT

... for forming "flexible" duct connectors. A one piece metal to material unit, packed in coils, unrolls absolutely flat. Makes on the spot work a cinch.

ELGEN DAMPERS

... for multi-blade dampers, parallel or opposed. Most perfect damper hardware developed.

ELGEN PRODUCTS ARE SOLD THROUGH LEADING JOBBERS EVERYWHERE.

Write today for free
catalog and "spec" sheet!

ELGEN MANUFACTURING CORP.

41-34 39th Street, Long Island City 4, N. Y.



the editor's notebook

(continued)

with him because these programs acquaint newcomers with the industry's background and keep everyone up to date on the latest developments, practices and standards.

How to Spend \$50,000 In 22 Seconds

THIS NEWS item sent me by the Chamber of Commerce of the United States reveals some facts that challenge the imagination. What do you think?

"If Congress had passed the proposed budget of \$71.8 billion, the Federal Government would spend:
\$5,983,916,667 per month
1,380,903,846 per week
196,731,506 per day
8,197,147 per hour
136,619 per minute
2,279 per second

"In the time it has taken you to read this, the government would have spent approximately \$50,000."

Watch the Low Price— It Might Boomerang

IT'S ALWAYS a satisfaction to come across an aphorism that pinpoints some one of the sins that are committed daily by mortal man — especially if the maxim has been altered to fit a particular situation. Frank Green, Heating Wholesalers, Inc. of Des Moines, displays this saying on his office wall:

"The bitterness of a POOR furnace installation remains long after the sweetness of a CHEAP price is forgotten."

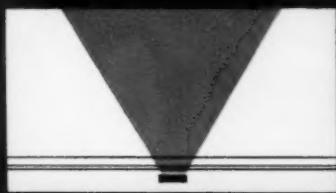
If everyone faced with the temptation to shave a little off his quoted price would remember this adage, the temptation would pass and the right price would prevail.

Clyde M. Barnes

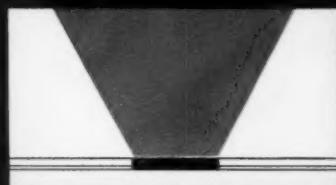
EDITOR



a pattern of
progress
plain to see



FLOOR DIFFUSER



SHORT BASEBOARD DIFFUSER



EXTENDED THERMO-BASE

genuine

Thermo-Base®

extended baseboard

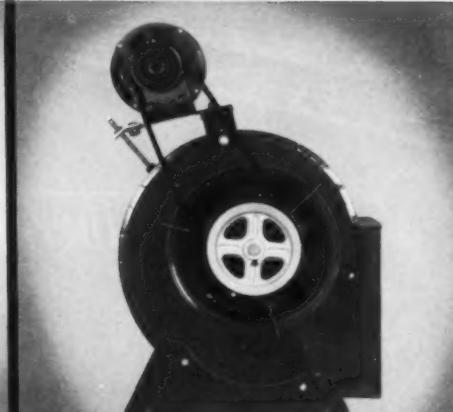
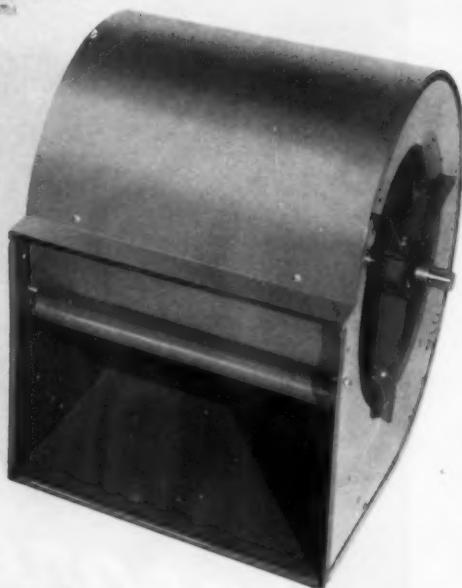
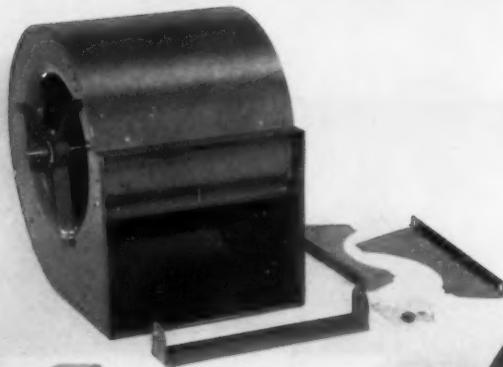
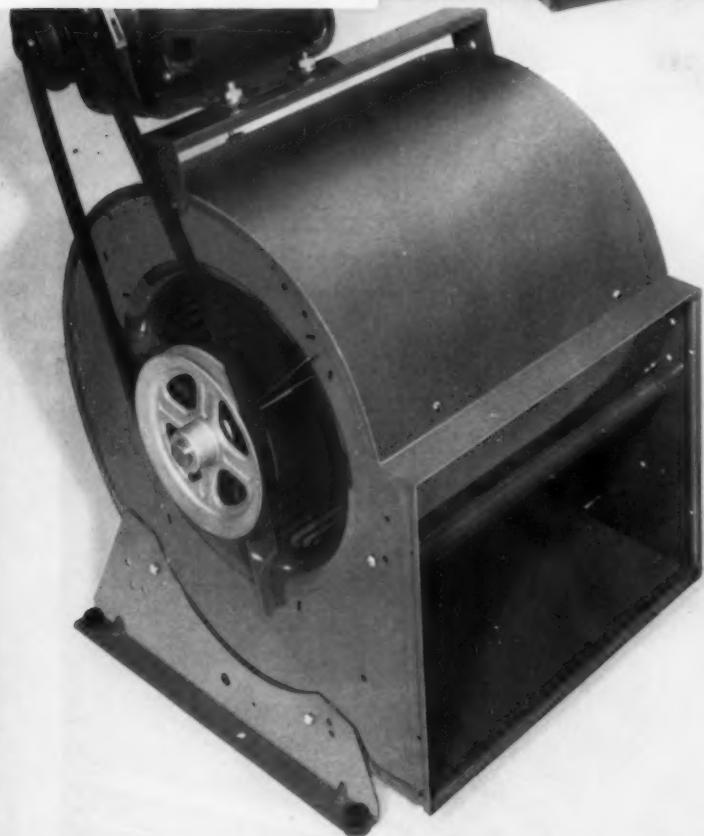
air distribution system

... America's greatest

comfort discovery

a product of GERWIN INDUSTRIES INCORPORATED michigan city, indiana

**ANNOUNCING
BRUNDAGE
AP SERIES**



AP UNIVERSAL BLOWER

Gives you an assembled blower fast with any discharge. Meets 80% of blower requirements with minimum inventory.

AP ASSEMBLED BLOWER

For factory or field installation. Saves manufacturing space, saves tooling and time, guarantees peak performance.

AP BASIC BLOWER

Lowest cost answer to modern demand for compact units. Insures quiet air delivery and sales-building durability.

AP

Completely New BRUNDAGE ALL PURPOSE BLOWERS

the first truly universal design

Gives you un-rivalled production flexibility - lowest blower cost

How a blower adapts to your designs, your production, and your field service standards — is the basic measure of its value to you. By those standards, this new series of blowers is unique.

You know that true "universal" performance demands completely interchangeable parts. Brundage engineers now give it to you. They broke with the industry custom of minor modification to create a new family of blowers at one time. Manufacturing tools, machines, and techniques are new. Every part of each blower is a new product. The result is identical parts by the thousands with the precision tolerances and in-

terchangeability of automated production. The new high-speed wheel, for example, is completely machine produced, blades assembled, locked into place, and jig-welded for perfect concentricity.

For the first time, full parts interchangeability is a practical fact. Whether you use the Basic Blower, the Universal Blower, an AP Series Assembly — or a combination of the three — your inventory and assembly procedures can be brought to peak efficiency. You know each blower and blower part is bound to fit, exactly.



NEW WHEEL

Die-formed parts, mechanically locked, then jig-welded for perfect concentricity — silent, high-speed service.



NEW SIDE PLATES

Includes 'Y' Bracket for smoother air flow. Slotted foot brackets insure perfect alignment, extra rigidity.

Samples of the Brundage AP Series Blowers are now available for manufacturers test. Measure their advantages in your own lab.

SEE WHY...

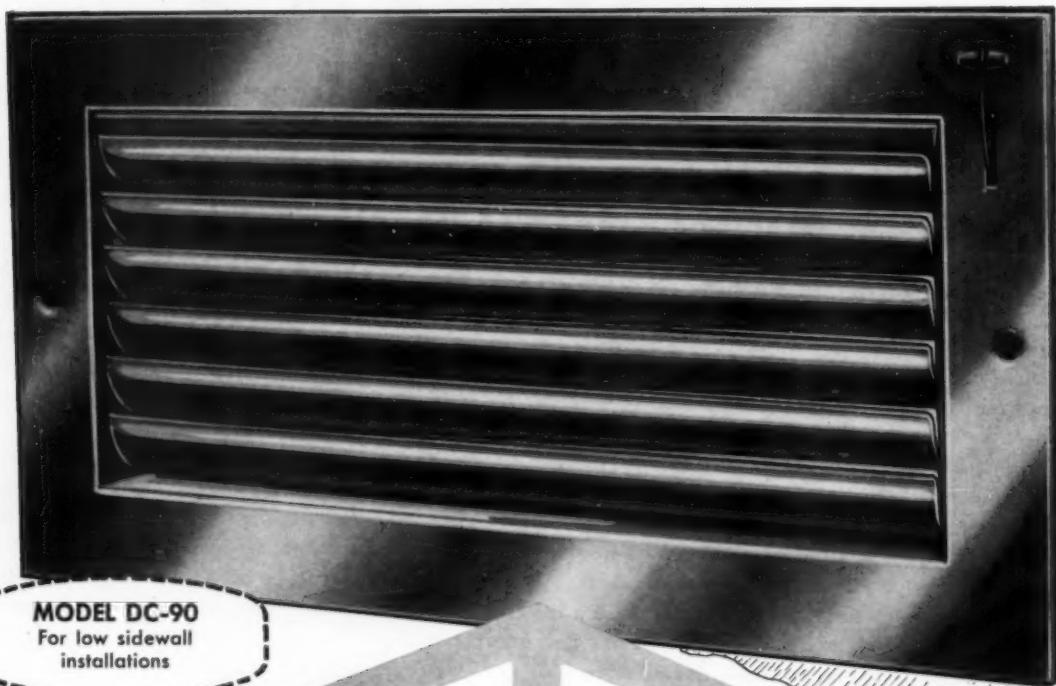
Your best buys

BRUNDAGE

THE BRUNDAGE CO.
504 NORTH PARK STREET
KALAMAZOO, MICHIGAN

REVOLUTIONARY! LOW COST! MAKES "CONVERTING TO

NEW Converti-

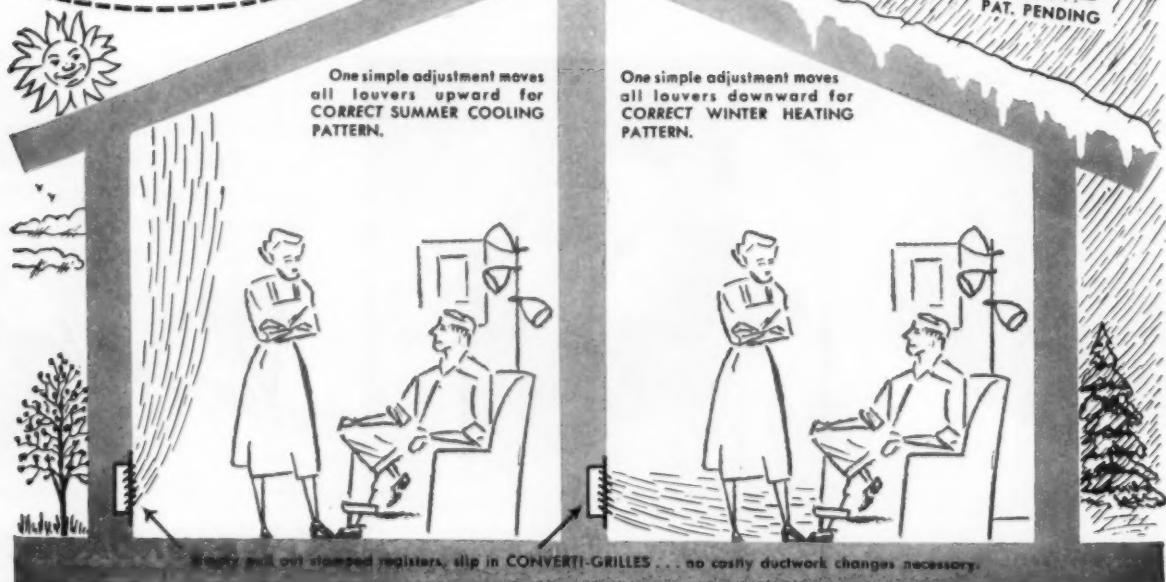


MODEL DC-90
For low sidewall
installations

PAT. PENDING

One simple adjustment moves
all louvers upward for
CORRECT SUMMER COOLING
PATTERN.

One simple adjustment moves
all louvers downward for
CORRECT WINTER HEATING
PATTERN.



... just slip over old slanted registers, slip in CONVERTI-GRILLES ... no costly ductwork changes necessary.

AIR CONDITIONING" JOBS SIMPLER, EASIER, FASTER!

Grille *by* TITUS

- First and only grille of its kind! **SPECIALLY DESIGNED TO REPLACE STAMPED REGISTERS WHEN CONVERTING FORCED WARM AIR SYSTEMS TO INCLUDE SUMMER AIR CONDITIONING.**
- Eliminates costly ductwork changes—just take out stamped registers—slip in Converti-Grilles.
- Fully adjustable, gang operated, curved Airfoil louvers assure **THE CORRECT AIR PATTERNS** for winter heating or summer cooling.
- Built-in, single valve damper adjustable from face of grille.

Get a bigger share of "converting to air conditioning" jobs—**MAKE MORE MONEY**—be sure of **SATISFIED CUSTOMERS**—with Titus New Converti-Grilles.

REMEMBER: Air distribution is the most vital part of any air conditioning system. How it's handled can make or break any of your jobs. **DON'T TAKE CHANCES**—use Titus New Converti-Grilles to replace outmoded stamped registers and be **SURE** you can provide **THE CORRECT AIR PATTERNS FOR MAXIMUM ROOM COMFORT.**

3 IMPORTANT APPLICATIONS FOR CONVERTI-GRILLE

1. Replace stamped registers when adding central air conditioner that hooks up to warm air furnace ducts.
2. Installation of combination units for central heating and cooling.
3. Installation of forced warm air systems with central air conditioning to be added later on.

Model DC-90 CONVERTI-GRILLE available 3 standard sizes in beautiful metalescent finish to fit nearly all old stamped register installations: 10" x 6", 12" x 6", 14" x 6". Also available as Model DC-90B with $\frac{7}{8}$ " projection flange for baseboard applications. IMMEDIATE DELIVERY! ORDER NOW!

MAIL COUPON TODAY FOR SAMPLE CONVERTI-GRILLE—FREE BROCHURE



Converti-Grille

WILL AMAZE YOU!

Get your sample Converti-Grille right away. Hold it in your hands. Examine it. Test it. See for yourself why it's *the* grille to use to replace stamped registers—why it provides superior air diffusion performance for **both SUMMER COOLING AND WINTER HEATING.**

TITUS MANUFACTURING CORP., WATERLOO, IOWA

RUSH ME SAMPLE CONVERTI-GRILLE BY RETURN MAIL.
Enclosed is my check for \$5.00 to cover cost of grille and mailing. I understand that if I am not 100% satisfied with Converti-Grille, and if I return grille within 10 days after receiving it my money will be refunded.

SEND FREE CONVERTI-GRILLE BROCHURE giving complete performance and engineering data, prices.

SEND NAME OF TITUS DISTRIBUTOR nearest me so I can place order for CONVERTI-GRILLES.

Name _____

Address _____

City _____ State _____



Nick Hart
Hart Sheet Metal
95th and Schlage
Lenexa, Kansas

Nick Hart gives you more reasons why...

"You can stake your reputation on a Milcor installation!"

"It's a real pleasure to open a carton of Milcor Furnace Pipe and Fittings because they always look so clean and new — and we know that they will fit together perfectly. When you're through with a job, the customer has something that will stand up for a good long time.

"We know that Milcor products have helped us make lots of friends in Lenexa

for more than eight years. And by using standardized fittings on our heating jobs, we've made longer profits!"

With contractor after contractor, it's the same story — it pays to use Milcor products. Make Milcor standard in *your* shop.

Contact your jobber, or our nearest branch for prices. (See list below.)

MILCOR® Standardized Fittings

INLAND STEEL PRODUCTS COMPANY, Dept. T, 4023 West Burnham Street • Milwaukee 1, Wisconsin

ATLANTA • BALTIMORE • BUFFALO • CHICAGO • CINCINNATI • CLEVELAND • DALLAS • DENVER • DETROIT • KANSAS CITY • LOS ANGELES • MILWAUKEE • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS



NEW!

Offset End Boot No. 738
For a better fit
close to a wall.

New Council Plans To Continue Where Halted ohi Left Off

NEW YORK CITY — The well-publicized Operation Home Improvement campaign came to a halt last month after nearly two years of existence. In its place, industry leaders plan to create a new program for an even greater effort to promote the remodel and repair market.

A new and permanent promotional organization called Operation Home Improvement Council has been set up by a group under the leadership of members of the former ohi board of directors. Fred C. Hecht, general merchandise and retail sales manager, Sears, Roebuck and Co., was elected chairman.

At a Washington meeting, representatives of all segments of the industry approved the outline of a new program. OHIC plans to develop a promotion program for 1958 aimed at the consumer rather than at trade and industry groups as in the past.

OHIC plans to step up efforts at the community level and organize local chapters in addition to those already formed under ohi. The program will retain the familiar seal and the "Better Your Living" slogan. Only members will be permitted to use the symbol.

Details of the program are still being developed. At present it is hoped that the entire program can be unveiled in a series of meetings and mailings starting about September 1.

Plan Record Spending For Gas Industry Growth

NEW YORK CITY — The gas utility and pipeline industry will spend a record-breaking total of \$2.13 billion this year for new construction and expansion of facilities throughout the United States, the American Gas Association reported. This is an increase of 37 percent over last year.

FHA Approves Lower Down Payments And Interest Hike

WASHINGTON, D. C. — The administration has taken action designed to relieve the continuing slump in new house construction. Down payment requirements on loans guaranteed by the Federal Housing Administration have been reduced. At the same time, FHA minimum interest rates were increased from 5 to 5 1/4 percent. New limits were set on discounts permitted on FHA loans.

Under the recently enacted Housing Act of 1957, FHA was given authority to reduce required down payments. For example, on a \$14,000 house the down payment has been reduced to \$900 from the present \$1700.

This latest increase in interest rates has been designed to aid the flow of money into mortgages insured by the FHA. The market for

Discuss Solution for New Electric Loads

HOT SPRINGS, VA. — In the future we may see 240/480 circuits in common use in homes. This possibility was discussed at the annual meeting of the major appliance division of the National Electrical Manufacturers Association.

The higher voltage levels were mentioned as a possible solution to the problem of the ever-increasing electrical loads in homes and the difficulty of providing for it over existing distribution facilities.

Present circuit voltages are 120/240 with 120 used for lighting and 240 for the operation of major electrical equipment such as central air conditioning, ranges, water heaters, automatic washers, driers, etc.

The problem is being studied by a joint industry committee. It remains to be determined to what level voltages can be raised, if all technical and safety problems are solved.

government backed mortgages has been dropping since 1955, while that for conventional mortgages without interest rate ceilings has remained steady. Builders have been paying sizable discounts in most areas to finance FHA and Veterans Administration loans. But the new housing law requires the government to regulate these discounts.

Last December the FHA increased interest rates on the mortgages it insures to 5 percent. This increase did not produce a marked upturn in sales, but it is felt that it did check the decline. Present law allows the FHA to boost its required interest rates as high as 6 percent if conditions warrant.

Loans backed by the VA, on the other hand, have an interest ceiling of 4 1/2 percent. As a result, VA mortgages have fared badly in the highly competitive money market. Congress turned down a proposed increase in VA interest rates and in effect killed the program before it was scheduled to expire.

The Labor Department reveals that private housing starts in June declined to a seasonally adjusted annual rate of 970,000 units. This drop came as something of a surprise and it probably influenced the government's decision on what steps to take in spurring home-building.

Vigorous opposition to the increase in interest rates should no doubt be forthcoming from Democrats in Congress, who have been using high interest rates as one of their chief weapons in attacking the administration.

At the same time, action to reduce down payments will be cheered by the building industry. Treasury officials, on the other hand, say that most lenders now insist upon down payments higher than the previous minimums.

(More news on page 23)



Which is the best way to heat a house?

That depends on the house. The size, the construction, the kind of architecture make big differences. And there's another important point. Is air conditioning to be added later? Whatever the heating or air conditioning need, a Carrier dealer has the equipment to meet it. (Four of the many choices a Carrier dealer can offer his prospects are shown at the right.) Furthermore Carrier dealers are the best trained heating and air conditioning specialists in the business. Would you like to join the ranks of prospering Carrier dealers? Call the nearest Carrier distributor or write to Carrier Corporation.

It's time to call Carrier. You'll find your Carrier distributor's name in the Classified Telephone Directory. Carrier Corporation, Syracuse, New York.



For homes with basements—A Carrier Winter Weathermaker* occupies less space than conventional furnaces. It's a "Furnace with a Future" because cooling is easily added later. Repeat business for you.



For homes without basements—A downflow Carrier Winter Weathermaker is ideal for homes with slab or crawl space foundations. Cooling coil can be quickly inserted under furnace. Repeat business for you.



For small compact houses—This horizontal Carrier Winter Weathermaker occupies no living space. It may be located in the attic or the crawl space. Cooling coil can be built into the ductwork. Repeat business for you.



For large houses—The Carrier oil-fired lowboy Winter Weathermaker was designed for demanding heating jobs. Cabinet on top makes the addition of cooling coils simple. More repeat business for you.

*Reg. U.S. Pat. Off.



COPPER is today's most popular kitchen feature Getting your share?

It's not news that the modern housewife has gone all-out in her acceptance of copper as a favorite feature in her kitchen. The possibilities for both production items and custom kitchen equipment made of copper are terrific . . . but are you getting your share of this lush new market?

Why not give some thought today to planning some kitchen products of copper and

make it Hussey Copper from the beginning. We supply copper in all forms from sheet to wire and in all popular analyses. For your convenience, there is a Hussey Copper Warehouse near you. For new profits, give it a try with Hussey Copper.

BUILDING PRODUCTS • SHEET • WIRE • COILS •
BARS • STRIP • TUBING • ROOFING PRODUCTS



HUSSEY COPPER

C. G. HUSSEY & COMPANY • (DIVISION OF COPPER RANGE CO.)
ROLLING MILLS AND GENERAL OFFICES: PITTSBURGH 19, PA.

7 Convenient Warehouses to Serve You . . .

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2850 Second Ave.
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CINCINNATI (37)
1045 Meta Drive
PHILADELPHIA (30)
1632 Fairmount Ave.

ST. LOUIS (1)
Central Terminal Bldg.
NEW YORK, LONG ISLAND CITY (6)
34-39 Thirty-first St.

WHAT'S HAPPENING... including Washington Letter

(Continued from page 19)

FHA's Title I Loans Reach \$10 Billion

WASHINGTON, D.C. — The Federal Housing Administration has exceeded the \$10 billion mark in the amount of repair and remodeling loans insured under its Title I property improvement program in its 23 year history. Roy F. Cooke, assistant commissioner, said, "Twenty million homeowners have been aided. Every home improvement raises the standard of living and enhances the value and desirability of property."

Most of the modernization loans under the program have been obtained for the improvement of the bathroom, kitchen and garage, Mr. Cooke said. Most repair loans were for new siding, painting, roofing, plumbing, electrical wiring, and the expansion of the attic or the addition of a new room or porch.

Because of the favorable experience in the operation of the Title I program, the FHA last month announced a 15 percent reduction in premium charges paid by lending institutions for insurance against loss.

Furnace Shipments Drop By 13 Percent from 1956

CLEVELAND, OHIO — Shipments of central heating furnaces through April were nearly 13 percent behind the same period last year, according to a report issued by the National Warm Air Heating and Air Conditioning Association.

The total shipments of gravity and winter air conditioning units for the first four months were 291,189 as compared with 334,653 last year. Shipments for the month of April were 74,084 as compared with 83,368 last year.

On the basis of fuels, 66.6 percent of the shipments through April were gas-fired, 30.2 percent oil-fired and 3.2 percent coal-fired. This was roughly the same as for the year before. Gravity units accounted for 5.5 percent of the shipments.

U. S. Chamber Conference Sees Business Outlook Good

WASHINGTON, D.C. — Specialists from various fields met together here to appraise the business outlook for the remainder of the year. They unanimously agreed that the economy was in good health and expanding and that the outlook was very good. The conference was sponsored by the United States Chamber of Commerce.

Dr. Emerson Schmidt, economic research director for the National Chamber, said that the economy will remain at its present high level, with practically full employment, for the balance of the year. He said, "I think there will be a sufficient supply of loan funds from banks and insurance companies and other investment lending agencies and pension funds to continue to finance the economy on this high plateau."

Business Leaders Predict Decade of Boom Ahead

NEW YORK CITY — Between now and 1967, America's industrial growth will break all previous gross sales records, and this record breaking expansion will take place in an atmosphere of continued economic stability and domestic peace. This is the prediction of a panel of 110 company presidents representing many of the nation's leading businesses. The business leaders were surveyed by Dun's Review and Modern Industry.

None of the presidents queried fears a major recession this year, and nearly three-quarters are confident that no important economic setbacks will occur in the coming decade. Only a dozen of the 110 presidents see any likelihood of a major recession or depression within the next ten years, and seven of these twelve rule out this possibility until some time after 1960.

The panelists agreed that mild inflationary pressures would continue during the remainder of the year.

Fred I. Rowe, chairman of the Chamber's construction and civic development committee, said that construction in general is in a very optimistic position today. He noted that dollar volume so far is 3 percent above last year. Among the favorable factors he said are a full supply of construction materials for immediate delivery and an adequate supply of labor.

New housing starts were seen as running about 900,000 as compared with 1,100,000 last year. However, expenditures on home improvements and modernization will increase over last year's level.

Steel production is expected to drop in the third quarter, averaging 80 percent of capacity. Production during the final quarter should top that of the second quarter and provide a good total for the year.

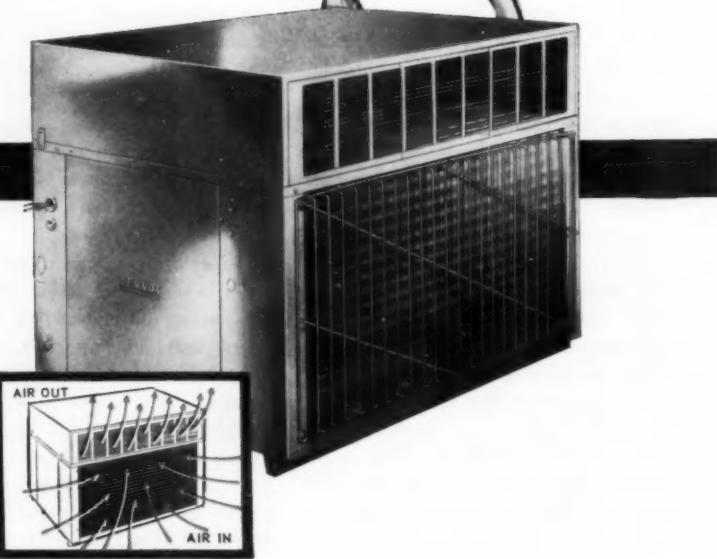
SBA Management Aids Offered in Single Volume

WASHINGTON, D.C. — A consolidation of eleven Management Aids for Small Business into a single permanent volume is now available from the Small Business Administration. Included in the volume are: How Good Records Aid Income Tax Reporting, Wage Incentives in Small Business, Streamlining Office Systems in Small Business, How Marketing Research Helps Small Business and others. This is the third such annual publication.

Copies of the volume, Management Aids for Small Business — Annual No. 3, can be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C., for 45 cents a copy.

(More news on page 26)

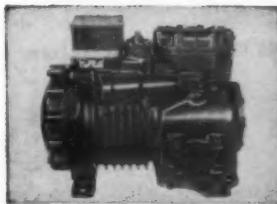
NEW from the



A whole new world of installation possibilities is opened up with the new Lennox condensing units. You can bury them in walls, building foundations, carports, or put them out in the open. Optional hood provides for air intake and discharge on the same side, with *no possibility of re-circulation*. There's no danger of killing shrubs or scalding grass. Without hood, air can be ducted in and out.

SOUND up!

NEW 4-TON CONDENSING UNIT...
full 48,000 Btu/h capacity (with 95° air entering condenser)



NEW "JOB-MATCHED" COMPRESSOR

The Lennox super quiet and serviceable compressor was built for this specific 4 ton unit—the same rugged, durable semi-hermetic design that has set new standards of quiet, economical, trouble-free operation under the toughest operating conditions in the field.

Another *LENNOX* First in Air Conditioning Design!

For those 3½ to 4 ton loads — where you've been forced to install 5 ton units at substantially greater cost — here's the perfect answer. The all-new Lennox 4-ton unit has been designed to fill this gap in equipment sizing. Now Lennox offers air-cooled equipment — years ahead in design — in these Btu/h sizes: 23,300; 34,100; 39,250; 41,700; 48,000; 58,100; 82,000; and 114,000 . . . each one honestly and conservatively rated at 95°, A.R.I. standard conditions.

It's another reason Lennox Comfort Craftsmen have the solution to every air conditioning problem.

MAIL THIS COUPON TODAY FOR FURTHER FACTS . . .

LENNOX Industries Inc.

Established 1895

Marshalltown, Iowa • Columbus, Ohio • Syracuse, N.Y. • Fort Worth, Texas
Salt Lake City, Utah • Los Angeles, Calif. • Decatur, Georgia • Des Moines, Iowa
Lennox Industries (Canada) Ltd.—Toronto, Montreal, Calgary and Vancouver

LENNOX Industries Inc.

Address nearest factory. See locations at left.

Please send me additional information on the
"new from the sound up" Lennox 4-ton Air Conditioners.

I understand there is no obligation on my part.

Company.....

Address.....

City..... State.....

My Name.....

What to Do About Inflation Is Subject of National Debate

WASHINGTON, D.C. — A debate which may have a significant effect on the future of our economy has been raging in the nation's capital and business and financial centers. The question is inflation and what can be done about it.

The debate has been set off by the simple fact that, after a three year halt in the rise of living costs, the past year has seen the spiral resume its upward course with a 3.6 percent rise.

Prof. Sumner Slichter of Harvard University has argued that under modern conditions creeping inflation is inevitable, being the price we pay for our system, and that it is the lesser of evils and can be lived with.

A leading financial executive was quoted as saying, "We shall experience a rising price level for the rest of our lives. The rise may be irregular, but it will be unmistakable."

The question of what causes inflation is complex. Basic economic theory holds that prices are determined by supply and demand. Demand in turn is created by consumer's wants and the amount of money available to them. The more money they have, the more they are willing to spend to get what they want.

Many businessmen and economists blame the steady rise in prices on wage advances which have been greater than increases in productivity. These advances have increased unit costs which, in turn, push prices higher. In other words, they feel that prices are being pushed up from below due to increased labor costs, rather than being pulled up from above because of increased demand.

Prof. Slichter bases his prediction of continued creeping inflation on several factors. First, he says that labor unions will continue to make full use of the bargaining powers

that full employment gives them to push up wages faster than the gains in labor productivity. Second, it is not feasible to deliberately create unemployment to hold down wages. Third, inflation can be held to a slow, creeping pace.

Prof. Slichter said, "It would, of course, be nice if prices would not rise, but . . . in this imperfect world we are often compelled to choose between evils, and if the choice is between enough unemployment to halt the rise in labor costs, direct controls of wages and prices, and creeping inflation, let us by all means have creeping inflation. It is the least of the three evils."

The many authorities who argue with Prof. Slichter's thinking basically do so because they do not believe that inflation can be held back. C. Candby Balderston, vice chairman of the Federal Reserve Board of Governors, said recently, "It is not possible to have just a 'little' inflation."

The argument against Prof. Slichter holds that once the buying public realizes that inflation will extend indefinitely into the future, they will begin buying in advance before prices go up. This increased demand will then force prices up even faster. As Mr. Balderston puts it, "The infant

(Continued on page 30)

Compressor Shipments Up 4 Percent Over '56

WASHINGTON, D.C. — Shipments of all types of compressor bodies used in air conditioning and refrigeration units (except household refrigerators and compressors designed for ammonia refrigerant) were up about 4 percent in the first quarter of the year compared with last year. According to the Air-Conditioning and Refrigeration Institute, actual shipments for the three month period totaled 1,392,854 units in 1957.

AFL-CIO Attempts To Settle Disputes

WASHINGTON, D.C. — A program aimed at resolving the problem of recurring and troublesome jurisdictional disputes between the building trades and industrial unions has been approved by the AFL-CIO executive council.

Under the leadership of President George Meany, the council members considered the principal area of dispute involving such work as alterations, major repairs, relocation of existing facilities, changeovers, and other types of maintenance work. The council agreed that decisions should be made in each case on the basis of established practices in the plant, area or industry.

A committee will be organized with representatives from the industrial union department and the building and construction trades department. Working under the direction of Mr. Meany, they will devote full time to adjusting such disputes. Disputes not settled in this manner will be referred to higher committees. The program must be approved by the departments.

Issue Revised CS 75-56 For Domestic Oil Burners

WASHINGTON, D.C. — The printed revised edition of the commercial standard for automatic mechanical-draft oil burners for domestic installation has been issued by the department of commerce. Known as Commercial Standard CS75-56, copies may be obtained from the Superintendent of Documents, U.S. Printing Office, Washington 25, D.C., for 15 cents each.

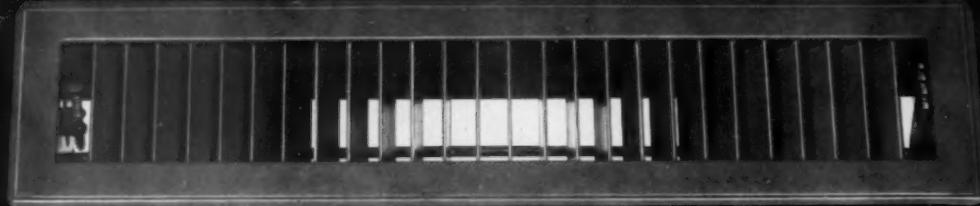
This edition is a revision of the previous CS75-42. It establishes minimum standard specifications and methods of testing and includes installation requirements and performance tests. It also provides a standard oil burner certificate to be placed with each burner installation.



No. 410-The Leader In PERIMETER DIFFUSER FLOOR REGISTERS

NO. 410 DIFFUSER FLOOR REGISTER

Designed for Perfect Perimeter Performance. The 5 Degree graduated setting of bars — from 0° in center to 45° at each end — develops



the Greatest Air Spread for Blanketing Windows and Outside Walls . . . for Warming and Cooling Air Conditioning.

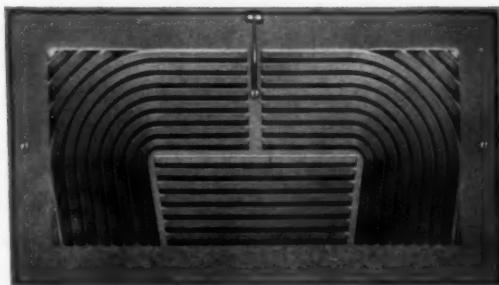
The Parallel Valve Control is designed to Control not only the Volume of Air Output but ALSO GIVE the DESIRED DEFLECTION away from Walls and Windows to prevent curtain or drape movement and wall soiling. Get the Best — the No. 410 U. S. Base Diffuser

No. 105 U. S. SIDEWALL DIFFUSER

— That Powerful, Low-Resistance Perimeter Sidewall that is the GIANT of ALL of its type.

For Out-of-The-Wall Perimeter Systems the No. 106 PERIMETER BASE DIFFUSER Out-classes, Out-performs all other base diffusers. Low Resistance . . . Most Capacity . . . Greatest Air Spread!

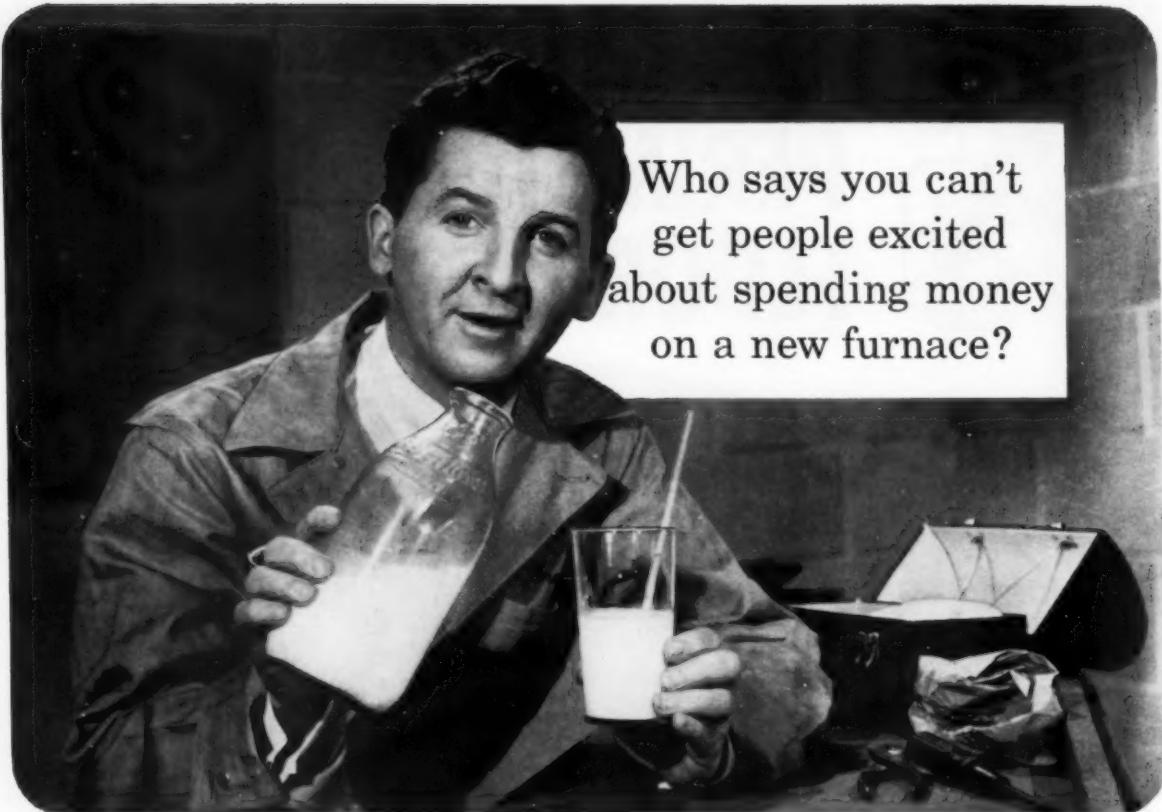
Both No. 105 Perimeter Sidewall and No. 106 Perimeter Base Diffusers deliver a full 180° of Even Air Flow at every degree of Diffusion.



DON'T WAIT LONGER — GET YOUR 556R CATALOG NOW
HAVE YOU RECEIVED YOUR SUPPLY OF PERIMETER FOLDERS?

UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN
MINNEAPOLIS • KANSAS CITY • ALBANY



Who says you can't
get people excited
about spending money
on a new furnace?

EDDIE BRACKEN USES "MILK-AND-STRAW" DEMONSTRATION ON TELEVISION TO SHOW PRINCIPLE OF WATERBURY COMFORTROL HEATING

Waterbury's NEW Ideas make selling almost a cinch!

There's a lot of talk these days about the "livewire" in the heating and cooling business—and with good reason. Waterbury offers the finest in a complete line of heating and cooling equipment for you to sell. It gives you the greatest new development in the industry in 20 years—COMFORTROL—the even-temperature comfort system. Waterbury supplies you with practical,

hard hitting sales aids for *helping you sell* both new and replacement jobs.

No wonder the big switch is to Waterbury! **HOW ABOUT YOU?** Write now to Jack Searls, Waterbury's Sales Manager, and you'll be on the way to a more secure, more profitable heating and cooling business by this time next year. You can feel good, feel *sure* when you install Waterbury!



The Waterman-Waterbury Company

1122 N. E. JACKSON STREET, MINNEAPOLIS 14, MINN. ★ 50 YEARS OF PIONEERING IN HEATING AND COOLING



NEW Promotion Ideas

Waterbury offers you the opportunity to tie in with one of America's best-known, best-liked personalities, Eddie Bracken. On radio, television and in promotional materials, he commands attention, directs prospects to you and opens the door to easier selling. And he really has something to sell when he helps you sell Waterbury.



In a series of TV films available to dealers, TV-movie star Eddie Bracken plays the part of a Waterbury dealer.

NEW TELEVISION-RADIO AD PACKAGE STARRING EDDIE BRACKEN BUILDS UP WATERBURY DEALERS!



He demonstrates how Waterbury COMFORTROL Heating feeds heat into a home at exactly the same rate it leaks out.



And he tells the story of how Waterbury's factory training program makes Waterbury dealers real "comfort engineers".

WATERBURY HELPS YOU SELL:

- Recorded radio spots with Eddie Bracken.
- Eddie Bracken featured on direct mail pieces available to dealers.
- Complete kit of newspaper ad mats
- Outdoor and Indoor Display Plans
- 'Selling in the Home Plan'—most complete plan to nail down replacement sales. Dealers report the plan increases volume 30-200%!
- Dealer Education Plan—year 'round field conferences, factory schools keep dealers up-to-date on everything you need to sell!
- Builder Promotions Kits—to help dealers make hay in the new home market.

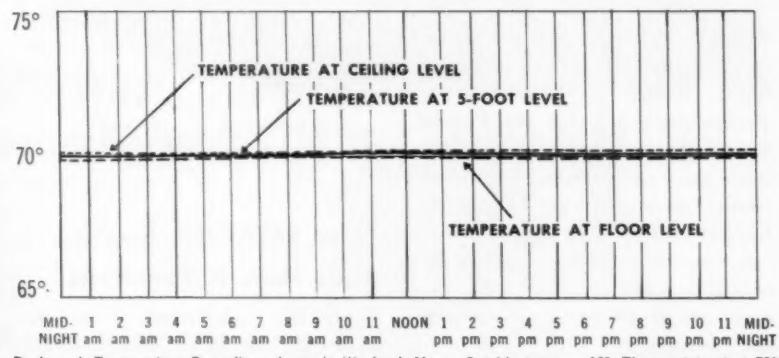
GO, GO, GROW with WATERBURY!

NEW Product Ideas



YOU SELL HEALTH when you sell Waterbury COMFORTROL. Not only does the temperature remain constant hour after hour—it varies less than 1 degree from floor to ceiling!

NEW WATERBURY *Comfortrol* GIVES YOU A GREAT PRODUCT THAT MAKES 'EM FORGET ABOUT PRICE!



Outside temp. -10°, Thermostat set at 70°

IMAGINE HOW THIS CHART CAN HELP YOU SELL!

It's the picture of carefree, constant comfort you can promise when you sell revolutionary new Waterbury COMFORTROL. No more fussing with the thermostat . . . no more bake-one-minute, freeze-the-next heat. COMFOR-

TROL's continuous flow of warm air at just-right temperature assures a new kind of comfort that makes a home owner forget about price. And look to WATERBURY for more NEW IDEAS that you can sell!

This is the month to SWITCH TO WATERBURY!

(Continued from page 26)

National Debate on Inflation Centers on Tight Money Policy

(Continued from page 26)

ceases to creep. It learns to walk, run, and finally gallop even though the gallop may carry it over the brink of the precipice."

Prof. Slichter, of course, sees this danger. But he says that there are three restraining influences which can keep inflation under control: 1) competition will keep price advances close to rises in cost, 2) technological progress, and the risks involved in it, will prevent people from buying ahead of time, 3) the government's monetary policy can block the creation of debt for the purposes of buying ahead of time.

His critics, however, point out that it is difficult to follow a tight money policy in ordinary boom times, and as inflationary pressures built up it may be impossible to stick to such a policy.

Thus a substantial portion of the debate on inflation centers around the so-called "tight money" policy. Investigations in the House and Senate are devoting a great deal of time to this subject. Congressman Wright Patman of Texas has frequently demanded that the Federal Reserve be required to make loan funds more easily available at lower interest rates. Senator Lyndon B. Johnson of Texas called tight money "an economic cancer which clogs the normal arteries of trade and commerce and chokes our normal growth and development."

In an earlier investigation of this same subject under Senator Paul Douglas of Illinois the following conclusion was reached: "As a long-run matter, we favor interest rates as low as they can be without inducing inflation, for low interest rates stimulate capital investments."

"But we believe that the advantages of avoiding inflation are so great and that restrictive monetary policy can contribute so much to this

end that the freedom of the Federal Reserve to restrict credit and raise interest rates for general stabilization purposes should be restored." As a result of this report the Federal Reserve was granted this freedom.

In recent testimony before the House Banking Committee, Federal Reserve Board Chairman William McC. Martin, Jr., warned that inflation is still the major danger facing the economy and declared that higher interest rates are "a very cheap price" to pay to forestall the threat. Money is like other goods, he said, and a modest increase in interest rates when the demand for money far exceeds the supply is needed to brake inflation.

"What we need to do to meet current problems," he continued, "is to reduce spending and increase savings."

The First National City Bank of New York's monthly letter said the way to hold back the pressure of wage advances on prices is to relieve the labor shortage created by attempting too many projects at one time. This can be done by making money harder to borrow and by curtailing public expenditures, it said.

New SMACNA Booklet Tells How It Functions

ELGIN, ILL. — A Prospectus has been issued by the Sheet Metal and Air Conditioning Contractors' National Association to explain the organization's functions. Copies are available to any individual contractor or group of contractors interested in learning more about the association.

The booklet briefly relates the history and purpose of SMACNA. It outlines the terms of membership and describes the organization's management. The functions of some 20 committees are also explained.

FHA Is Revising Property Standards

WASHINGTON, D.C. — A complete revision of the Federal Housing Administration's minimum property requirements is being prepared and will be released before the end of the year. The National Warm Air Heating and Air Conditioning Association has submitted its comments and suggestions to the FHA on the sections relating to the industry.

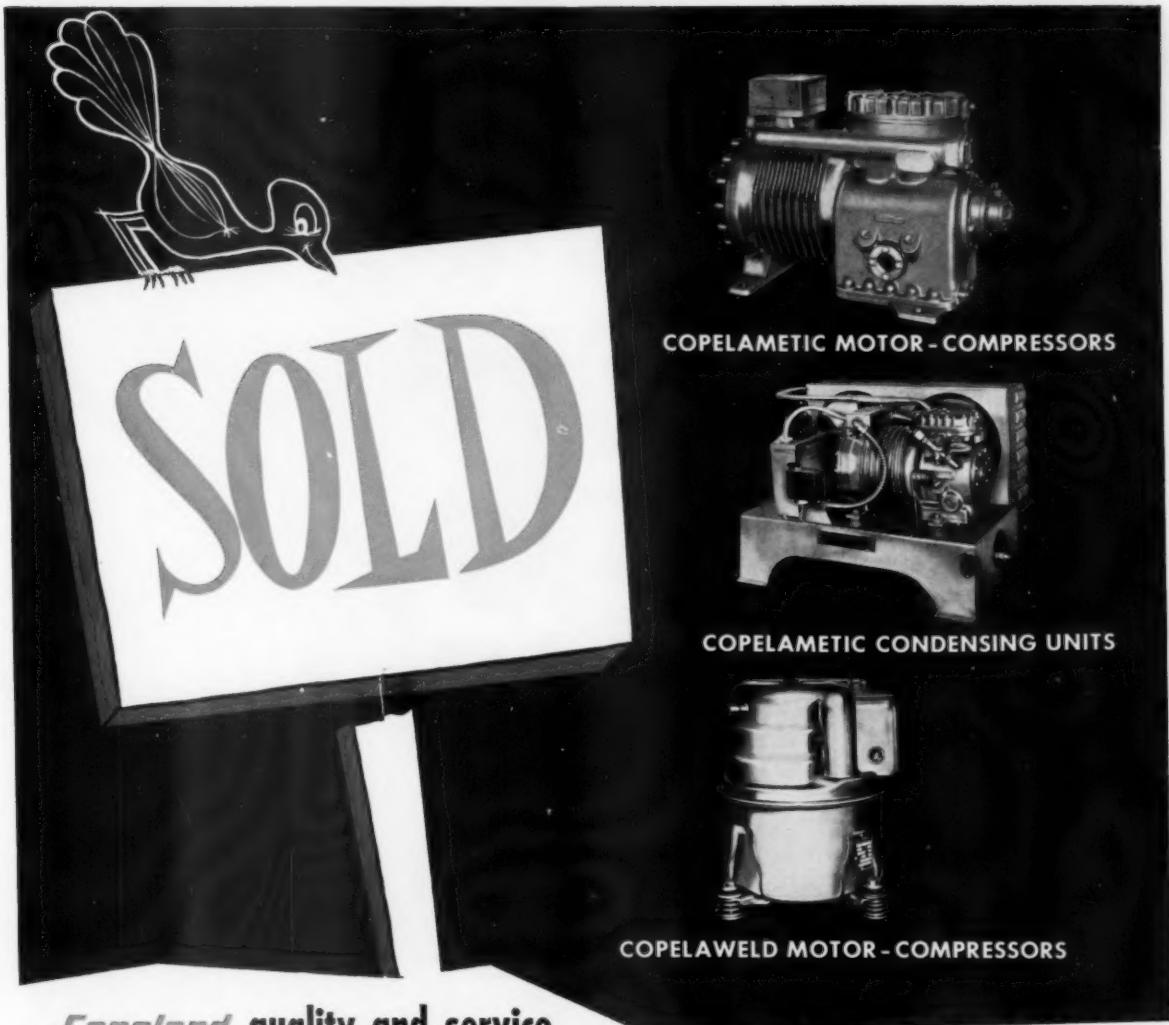
An interesting addition to the section on installation of heating equipment provides that: "Heating systems shall be designed, installed, and balanced or adjusted to provide an equitable distribution of heat to all habitable rooms and other spaces intended to be heated. In split level and 1½ or 2 story structures, suitable provisions shall be made to insure an acceptable degree of comfort in all habitable spaces on lower levels and to prevent overheating of spaces on the upper levels."

Homemaker Speaks On Comfort Control

LOS ANGELES — America's homemakers will be represented by a former Mrs. America at the Environmental Control Institute to be held at the University of California at Los Angeles Sept. 12 and 13. Mrs. Ramona Dietemeyer of Lincoln, Neb., said, "I feel privileged to be given this opportunity to speak for the end-user of comfort conditioning, the homemaker."

The announcement was made here by the Institute of Heating and Air Conditioning Industries, which is co-sponsoring the Institute with the UCLA school of engineering.

Mrs. Dietemeyer, a Lincoln housewife chosen top U.S. homemaker in 1956, was selected to act as a spokesman for women by home economics directors of Los Angeles area newspapers.

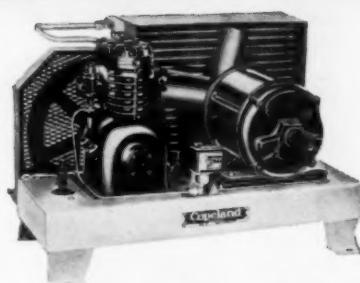


Copeland quality and service keep users sold on your equipment

Call the roll of America's leading manufacturers of display cases, air conditioners, coolers and related products and you'll find them delighted with their Copeland-powered units. Once they bought Copeland, it has become "Copeland from here on."

High quality of Copeland motor-compressors for air-conditioning and refrigeration products is one important factor. But these manufacturers also like our unequaled distribution system . . . nearly 150 wholesalers from coast to coast providing instant parts and replacement service to users of Copeland equipment. Field sales stocks are currently valued at close to \$4,000,000.

Now, thanks to our new manufacturing plant—most modern in the industry—the whole Copeland family is in improved position to deliver unexcelled quality with speeded-up service.



BELT-DRIVEN CONDENSING UNITS





VERSATILE NEW RHEEMGLAS FURNACE *priced right to capture the big-profit replacement market!*

Out with the old, space-eating octopus—in with a new Rheemglas furnace. A furnace offering so much that's new, so many advantages, you'd just expect it to cost more than comparable units. But it doesn't!

Rheemglas makes it far easier to add on summer air conditioning. It comes with an optional plenum and is specially engineered for cooling. Rheemglas is built to last longer than ordinary furnaces. The combustion chamber is lined with Rheemglas—a very special glass lining that eliminates rust and corrosion—and is unconditionally guaranteed for 10 full years!

Rheemglas is smaller. That 80,000 BTU gas-fired model shown above takes less than 3 square feet of floor space. It's a beauty too, isn't it? Handsome two-tone styling. Slim and trim. Not a button or knob showing. It's going to be installed as a highboy, but it could just as easily be a lowboy with one simple return-air attachment.

Equally important, Rheemglas is not one of a kind. Rheem has more new furnaces like it. There's a whole new Rheem heating line of gas- and oil-fired highboys, lowboys, horizontals and counterflows. Contact your distributor for details.

YOU CAN RELY ON



THE BIG NAME IN COMFORT PRODUCTS FOR THE HOME
central air-conditioning systems, wet-heat boilers,
water heaters, water softeners, plumbing fixtures

Home Products Division of Rheem Mfg. Co. / 7600 S. Kedzie Ave., Chicago 29, Illinois

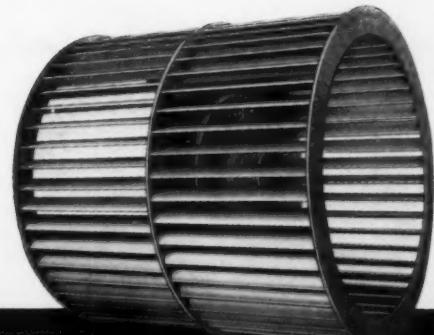
MANUFACTURERS:
**Clarage builds
 for pressures to 8"**

High pressure requirements? Clarage Type DF fan equipment has what it takes!

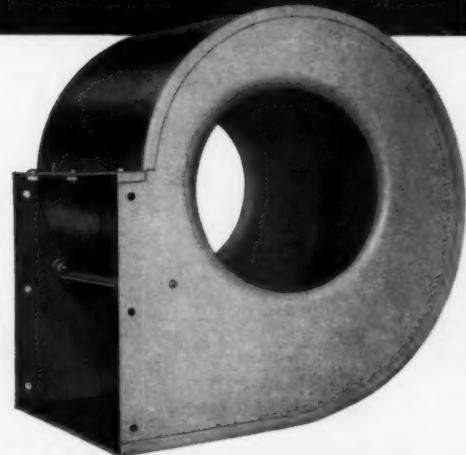
- Individual blades are *riveted* to the rim and back-plate.
- A large flange on the *cast iron* hub gives added rigidity to the rugged centerplate.
- *Heavy gauge* steel is used for the housing.
- Streamlined housing inlets, wheel blades that are die formed, and precision wheel balancing on special machines assure efficient, quiet performance.
- Wheels and housings can be hot dipped galvanized for protection against severe moisture conditions.
- Spark-resistant aluminum wheels and other special features and constructions are also available.

Give your products increased saleability. Incorporate Clarage quality — *known* quality that has *proved* its worth to other leading manufacturers.

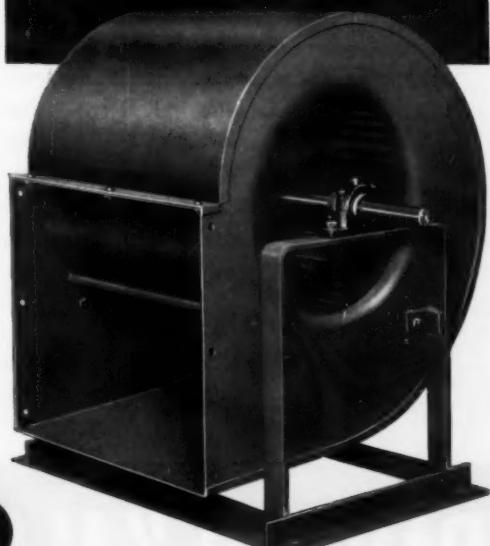
CLARAGE FAN COMPANY, Kalamazoo, Mich.



WHEELS and HOUSINGS



or COMPLETE FANS



*...dependable equipment for
 making air your servant*

CLARAGE

SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal

One of the many attractive "Greta Lederer Homes" recently built in suburban Glencoe, Illinois.



in the finest homes... P-K sheet metal fasteners!

In Chicagoland's swank North Shore suburban homes, heating and air conditioning contractors like Atomic Inc., make P-K Type-A fasteners their first choice. The *original self-tapping sheet metal screw*, Parker-Kalon fasteners are famous for quality and uniformity—no off-center or burred slots, no undersized or eccentric heads—they start right, drive right, help keep jobs on schedule. That's why leading Heating and Air Conditioning Contractors say . . . "If it's P-K . . . It's O-K!"



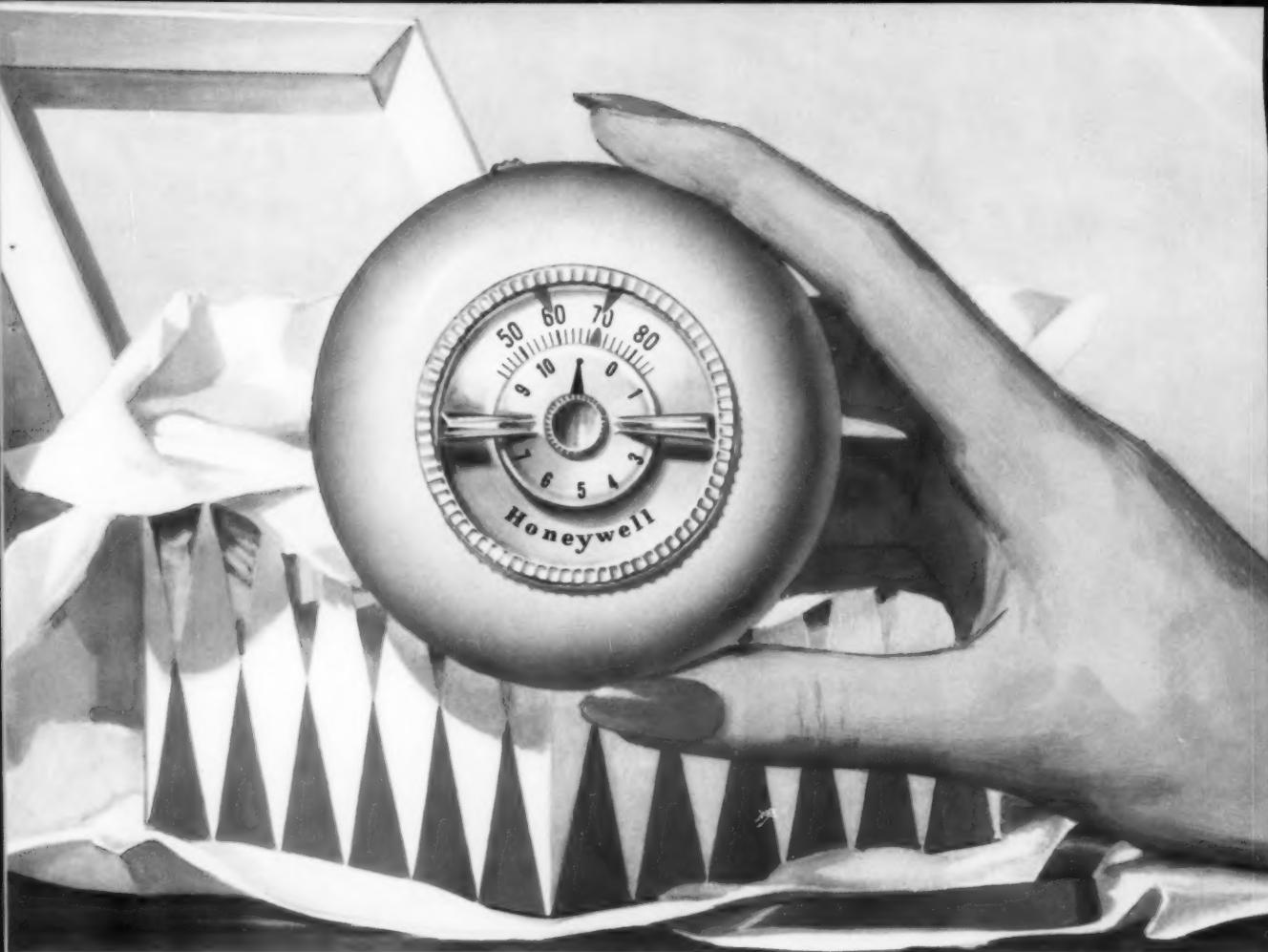
Contractor Stan Lundquist, Atomic Inc., Chicago, makes final check of heating and air-conditioning installation. "Whatever the size or type of job—office building, factory, store, or fine home—we look to P-K Self-tapping Screws for their speed and dependability."

PARKER-KALON

fasteners

Sold Everywhere Through Leading Industrial Distributors
Factory: Clifton, New Jersey—Warehouses: Chicago, Illinois—Los Angeles, California

PARKER-KALON DIVISION, General American Transportation Corporation
Manufacturers of Self-tapping Screws, Socket Screws, Screwnails, Masonry Nails,
Wing Nuts and Thumb Screws.



The wraps are off! Here's another great Honeywell thermostat

New Day-Nite Round

with automatic morning pickup!

New features, new beauty give Day-Nite Round new homeowner appeal, make it easier to sell.

Show your customers the smart way to new comfort, convenience, economy! Set at bedtime when heat is turned back, new Day-Nite Round automatically turns up heat to normal morning comfort level before household awakes. Saves fuel, too; greater efficiency and greater sensitivity. The outer ring comes off for easy painting to match or blend with any wall—an unusual decorator feature.



- Easy to use • Winds up at the dial and sets like an alarm clock • New, easy backplate mounting saves time.

- Dust-free mercury switch gives fast, positive action
- Adjustable heater to match any primary • Honeywell Time Modulation feature assures better heating plant performance.



*Outer ring comes off for decorating
It's easy to paint*

Honeywell



First in Controls



They're wise to the
ways of comfort... these
Honeywell Thermostats

The new Honeywell T832 Day-Nite Round, shown above, is the kind of thermostat heating men like to sell because it's low in cost and loaded with sales features. At bedtime, for example, homeowners set it for cool sleeping comfort. Then, before they awake, it turns up the heat so the house is toasty warm when they get up. It's a real fuel saver for working couples, too. They set temperature low when leaving the house and the T832 automatically turns up the heat before they return home in the evening. And everyone loves the famous Round decorator feature: outer ring snaps off for painting.

*Remember . . . it's good business to offer the complete line
of Honeywell thermostats!*

Honeywell
First in Controls



*Trademark



T7012

Golden Circle, for heating,
cooling. Works with out-
door thermostat for Elec-
tronic Modulflow* comfort.



T87

Year-Round Thermostat
controls heating and cool-
ing; choice of eight differ-
ent subbases.



T852

*Electric Clock Thermostat**
turns heating or cooling up
or down automatically—at
any desired times.



T86

Honeywell Round, world's
largest-selling thermostat
for heating. Accurate as a
fine watch.



*the furnace
with the
fuel-saving*

FINS



You can't **ALWAYS** be low bidder
... when you justify your actual overhead
and your real **NET** profit! **VICTOR**'s
exclusive, patented features of genuine merit
make it possible to justify the difference
in price to your prospect, and successfully
close the sale . . . **FAST!**



**VICTOR DEALERS ARE
MAKING MORE MONEY!**

Reports from **VICTOR** dealers, everywhere, PROVE this! They are closing more sales . . . at bigger profits BECAUSE . . . they are selling the **VICTOR** line . . . famous for quality, greater heating comfort and greater fuel economy. **VICTOR**'s patented, Fuel-Saving **FINS** save up to 30% in fuel costs. CLINCH SALES with **VICTOR**'s convincing table-top FIN Demonstrator AND a 15 year WARRANTY. *Sell the **VICTOR** line exclusively in your territory!*

**HALL-NEAL
FURNACE CO.**

Quality Furnaces Since 1890
1322-42 N. CAPITOL AVE.
INDIANAPOLIS 7, INDIANA

HALL-NEAL FURNACE CO.

1324 N. CAPITOL AVE., INDIANAPOLIS 7, INDIANA

Please give me full details of the **VICTOR** Heating and Cooling line
AND the extra profits I can make with an exclusive **VICTOR**
FRANCHISE.

NAME _____

FIRM _____

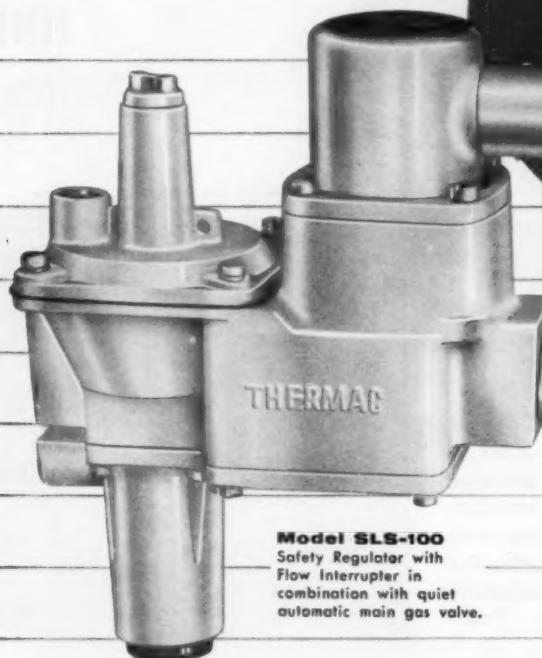
CITY _____

STATE _____

New!
THERMAC

all-in-one

GAS APPLIANCE CONTROLS



Model SLS-100
Safety Regulator with
Flow Interrupter in
combination with quiet
automatic main gas valve.



Model SRS-100
Safety Regulator without
Flow Interrupter in
combination with quiet,
automatic main gas valve.



Certified by A.G.A.

THERMAC
HM COMPANY

800 E. 108th Street, Los Angeles 59, California
Over 24 years' experience building gas controls

Send for specifications, dimensions and prices.

WITH

Luxaire[®]

COMPARE

the VARIETY!
the QUALITY!
the PRICE!



Gas Winter Air Conditioner has front panels removed to show complete factory assembling and wiring.



Winter Air Conditioner with Plenum Type Cooling Coil. Provision is made to increase Blower capacity for cooling, as needed.



Oil Winter Air Conditioner, showing interior construction with long air travel over Round Combustion Chamber and large Front Radiator.

Winter Air Conditioners and Counterflow Units — 75,000 to 150,000 Btu Input, Gas Fired; 78,400 and 112,000 Btu at Bonnet, Oil Fired — these completely new Luxaire Furnaces need less space and require connection of only the fuel line, electrical supply and ducts for installation. Compare the modern good looks, the heavier construction and the low prices!



Year 'Round Air Conditioner 2, 3 or 5 Ton Air or Water Cooled Gas or Oil Fired.



Add-On Water Cooled 2, 3 or 5 Ton Summer Air Conditioner.



Add-On Air Cooled 2, 3 or 5 Ton Summer Air Conditioner. Compressor-Condenser Assembly available with Duct or Plenum Type Cooling Coil.



Basement Type Winter Air Conditioner Oil or Gas Fired.



Utility or Counterflow Winter Air Conditioner Gas or Oil Fired.



Horizontal Furnace 4 Oil Models 4 Gas Models



Gravity Furnace Gas or Oil Fired.



Gas Fired Unit Heater 5 Models.

You'll see **WHY...**
It's the
MOST ADVANCED
Complete Line of
HEATING . . . COOLING
. . . YEAR 'ROUND AIR
CONDITIONING UNITS

Gas, Oil or Coal Furnaces that are famous for advanced engineering, sturdier construction and trouble-free performance — Air or Water Cooled Air Conditioners that are more rugged and less complicated — Luxaire gives you the size and type of unit you need, at the price which enables you to compete successfully.

In today's price-conscious heating market, you can benefit from the down-to-earth Luxaire price. Due to efficient manufacturing and because Luxaire puts cost where it counts — in heavier, more durable construction, instead of in troublesome gadgets — you can buy the superior Luxaire Unit for the price of a cheap furnace.

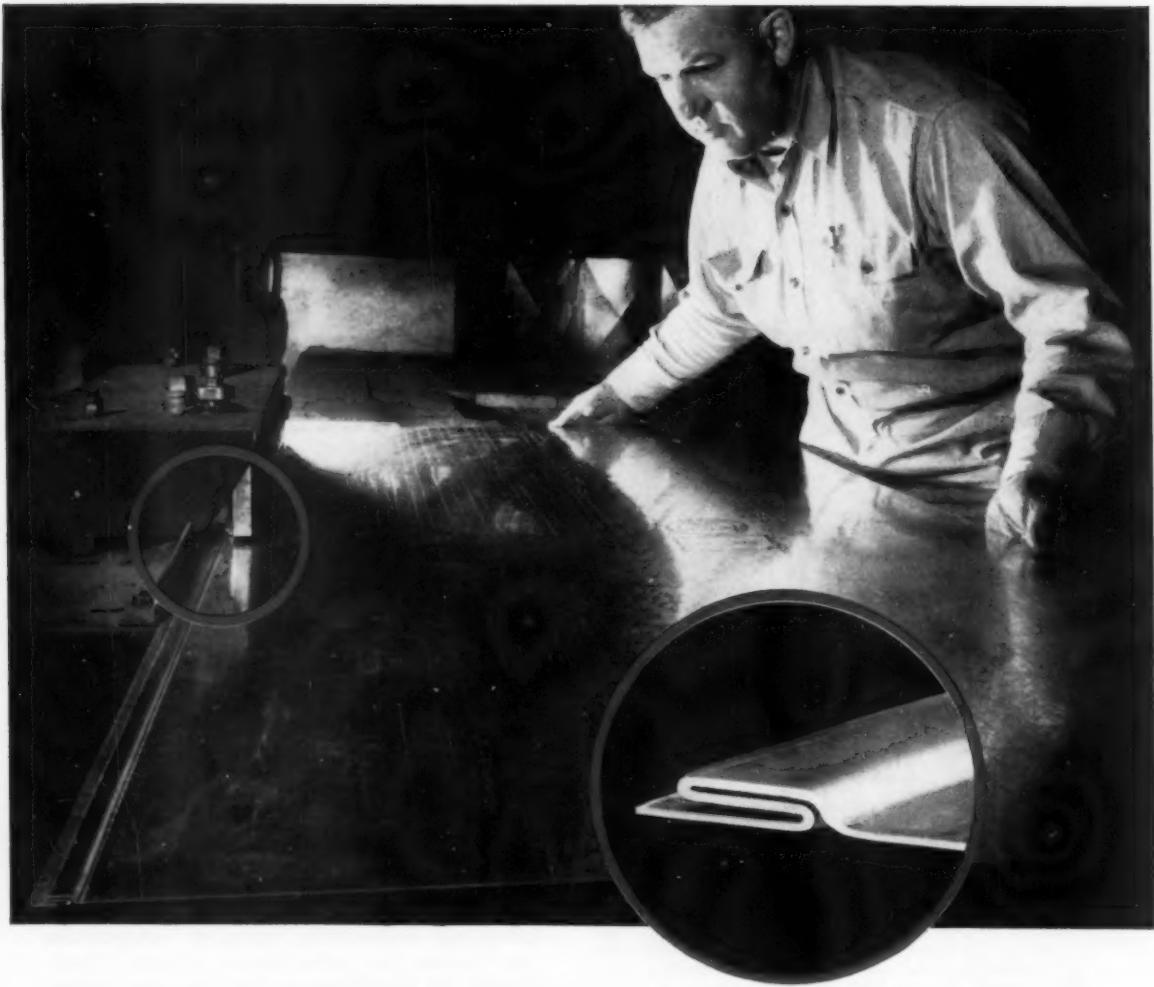
With Luxaire, you have what you need to forge ahead in today's competition. You have excellent units that you can install in less time and at lower costs, and really competitive pricing.

So, if you want to improve the quality of your installations, while increasing the profits of your business, why not call your Luxaire jobber for catalogs and price sheets, now?

THE C. A. OLSEN MANUFACTURING COMPANY . . . ELYRIA, OHIO

Luxaire

HEATING & AIR CONDITIONING UNITS



You can lock form with ease with **USS Galvanized Steel Sheets**

Yes, lock forming becomes a simple, routine operation when you use USS Galvanized Sheets. They are easy to work and that's because they are *uniform* in ductility, flatness, surface finish, size and gauge.

Another reason for their popularity and strong appeal is the good adherence of the protective zinc coating. Bend them, roll them, cut them, stamp them, solder or

spot weld them . . . there'll be no flaking or chipping . . . the coating sticks! That's because the modern, continuous line galvanizing process gives each sheet a uniform, adherent zinc coating.

Call us when you need galvanized sheets and other sheet products which include: galvannealed, cold rolled, stainless, hot rolled, Paintbond and aluminum.

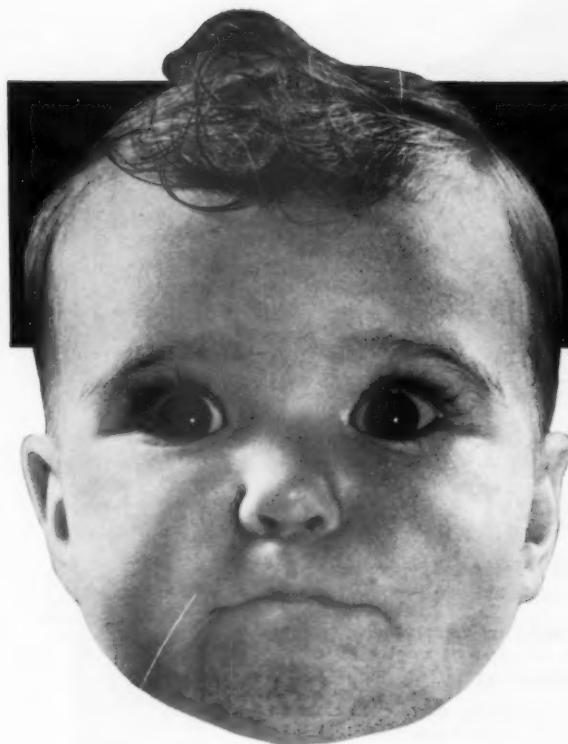
U. S. STEEL SUPPLY

DIVISION

P. O. Box 1099, Chicago 90, Ill.  General Offices: 208 S. LaSalle Street, Chicago 4, Ill.

Warehouses and Sales Offices Coast to Coast

U N I T E D S T A T E S S T E E L



"You don't say?"

WE DO SAY!
THOUSANDS
SAY...

PEERLESS *has* *Customer Recognition!*



PEERLESS

CORPORATION

FURNACES
AIR CONDITIONERS
FURNACE FITTINGS

1853 Ludlow Avenue • Indianapolis 7, Indiana

Certain trade names in business — any business — mean quality. Peerless is one of those names.

Never in more than half a century has Peerless made any compromise with the high standards it originally set for itself.

The result: mention Peerless to a customer and he immediately knows you're talking about quality heating or air conditioning. What remains then is simply to put the details of the matter before him and let him make his choice.

It is this customer recognition that has made Peerless sales go up . . . up . . . up!

THE PEERLESS CORPORATION
1853 Ludlow Avenue
Indianapolis, Indiana

Please rush me full details of the Peerless heating and air conditioning line.

Name _____

Firm _____

Address _____

City _____ State _____



Six Reasons for Turning to Ryerson for Steel

Sheet metal fabricators tell us that these six reasons keep them coming back to Ryerson for galvanized and every other steel requirement:

- 1. Exact length on net weight basis**—When your galvanized can be cut from stock width coils we can furnish 4 to 16-foot lengths in $\frac{1}{4}$ " increments—with the savings of a net weight price.
- 2. One sure source for all requirements**—Nobody comes even close to equaling the size and variety of Ryerson stocks—whether steel is in scarce or plentiful supply.
- 3. Highest quality**—For example, bright, ductile galvanized sheets, uniform in coating and true to gauge, that work easily and form without danger of cracking or peeling!
- 4. Correct weight**—and fair prices year in and year out.
- 5. Good packaging**—Tightly banded steel, skidded with sound lumber, cuts labor costs, adds protection to the steel and makes handling easier!
- 6. Absolutely dependable delivery**—A priceless assurance when delays could mean idle workmen or even lost business.

Next time you need galvanized—or any kind of steel—turn to Ryerson with complete confidence.

RYERSON STEEL

PRINCIPAL PRODUCTS IN STOCK: Sheets of every kind—carbon steel, stainless, expanded metal, etc., bars and band iron, tubing, angles, channels, etc.

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • WALLINGFORD, CONN. • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI
CLEVELAND • DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE



Bright Star on the Profit Horizon

AT MANY RECENT MEETINGS, speakers have said the warm air heating industry is at its lowest profit level since the early 30's. They have denounced poor installation practices, which are often responsible for "profitless prosperity." They have asked their audiences to take steps to solve this industry problem.

We at American Artisan have been well aware of this problem, and have been working to provide an answer. Thirty months ago we began a series of articles pointed toward establishment of performance standards for warm air heating systems. These articles showed how the industry's technical know-how can be directed toward better heating installations and to selling "quality—not price."

Our next step was to turn this valuable technical data into a national sales promotion program. This was accomplished in a special editorial section in the July Artisan. The standards for good heating as set forth in the series of technical articles were summarized under twelve headings that can be easily understood by buyers of heating systems.

The importance of such a sales tool as these heating performance standards is not recognized by American Artisan alone, but by many dealers, wholesalers and furnace manufacturers as well. We recently talked with several sales managers representing some of the industry's largest manufacturers. We asked, "What do you believe is the industry's greatest need today?" Over half of them answered, "A code outlining the minimum performance standards of good heating systems."

Before publishing the special section in the July American Artisan we prepared a 42-page preliminary draft of it which was mailed to dealers in every section of the country. Their response was, "This is the answer to our industry's price dilemma."

Wide use by the warm air heating industry of these heating performance standards is a "bright star on the profit horizon." We hope every dealer, wholesaler and manufacturer will join American Artisan in carrying the heating performance standards message to the public.

Future May See Sharp Shift in Furnace Sales . . .

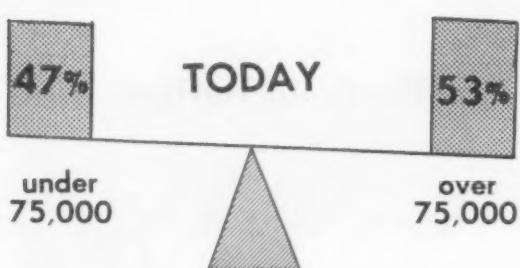


CHART I — At present the market for furnaces is almost evenly split above and below 75,000 Btu.



CHART II — New FHA proposed requirements would shift demand towards smaller units

Comfort Engineering Can Have A Major Impact on the Industry

Proper design of homes with maximum insulation can save money through lower operating costs. This trend may radically shift furnace sales toward smaller size units

ONCE IN A WHILE one segment of an industry does something that may greatly affect the interests and activities of the other segments. I believe such to be the case in the promotion by the building insulation producers of the concept of "comfort engineering," which can have a major impact on the heating-cooling industry.

What do we mean by "comfort engineering"? This term has been coined to mean the application of accepted engineering principles to the design of dwellings in order to provide maximum comfort at the lowest over-all cost.

Comfort engineering, as we define it, means three things: first, the maximum practical use of insulation; second, proper shading of sunny windows by exterior devices such as overhangs and sun screens or the use of heat absorbing glass, and third, good ventilation of roof or attic space to further reduce cooling loads.

Comfort Engineering Will Build Markets

Comfort engineering can no doubt accomplish a great deal for the industry as a whole. It can build bigger and better markets for residential heating and air conditioning equipment. It can help equipment manufacturers sell more units, cut production and selling costs, and increase profits. It can make some products obsolete and give others a substantial boost. Comfort engineering may be the long missing key to open the door to the market for central cooling in the average home.

I base these comments upon the results of a significant study being made to show what comfort engineering can do. This is called the Low Cost Comfort National Test Program. Through the cooperation of public utility companies and more than 150 home builders in 50 cities in all climate areas of the country, there are now 165 houses which are sub-metered and undergoing a two year study of actual operating costs.

The plans of these houses were first checked by qualified engineers to make certain that they adhered to the comfort engineering principles. The heating and cooling units installed in these 165 houses were properly sized according to the reduced summer and winter loads made possible by comfort engineering specifications, all of which are strongly recommended in the National Warm Air Heating and Air Conditioning Association's manuals.

Of course, some firm basis for comparison of the results in different houses was required. The candidate houses were built to conform to the minimum property requirements of the Federal Housing Administration. All test houses were also related to a standard house of 1200 sq ft of floor area, using fuel costing 10 cents per effective therm and power costing 2 cents per kilowatt hour.

Here are some of the things discovered in this study so far. Where heating alone is involved, adherence to

[Note: Adapted from an address by Tyler S. Rogers, technical consultant, Owens-Corning Fiberglas Corp., at the Second Technical Conference, National Warm Air Heating and Air Conditioning Association, Cleveland, Ohio.]

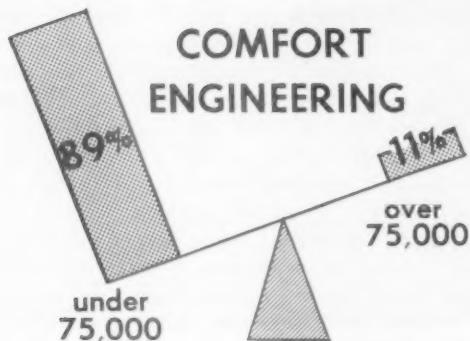


CHART III — If comfort engineering principles were followed, demand would shift sharply

comfort engineering standards increased the builder's initial cost of insulation over the FHA minimums by \$96, but thereafter saved the owner \$27 a year in operating costs. This meant that the added investment was repaid in 3.5 years.

This small extra cost is but a fraction of one percent of the house cost. It is less than the difference in competitive bids on any major element of house cost. It can be offset by such minor design changes as omitting a few square feet of ceramic tile in bathrooms or kitchens, cutting out some decorative detail of masonry on the exterior, or eliminating some minor gadget.

Where year 'round air conditioning is involved, comfort engineering added only \$23 to FHA minimum costs but annually saved \$54 in operating costs for the owner. This lower cost is due to bigger savings where combination heating-cooling units are used rather than heating equipment alone.

The extra cost of comfort engineering is primarily due to the use of maximum, rather than minimum, insulation, plus window shading devices and added ventilation where needed. From this total we must then deduct the difference in cost between the larger heating and cooling units needed under FHA minimum requirements and the smaller units that handle the reduced loads due to comfort engineering.

Comfort engineering offers to repay a homeowner his modest investment in from five months to five or six years and then keeps on paying the same returns for the entire useful life of the house.

Soundness of Trend Recognized

Some top manufacturers, editors and technical men have already recognized the soundness of a trend toward better insulating practices and smaller equipment. They believe, as I do, that equipment manufacturers will be generously benefited by the wide adoption of comfort engineering standards. Here are ten reasons why this is true:

- 1) The trend toward operating economy is desirable

and practically inevitable. The NWAHACA's Manual 3 has this to say on the subject: "It is good business to advocate the use of insulation and storm windows. The heat loss of the structure and the cost of the heating plant will usually be reduced by this improved weatherproofing, and it will be much easier to heat comfortably. The goodwill thus obtained will offset any small increase in immediate profit obtained by trying to sell a larger unit which will provide less comfort because of poorer building construction."

2) The FHA has made a proposal to limit the permissible heat loss from a house in a graduated scale related to climate. Up to now the basic limitation has been a maximum hourly heat loss of 55 Btu per sq ft of livable space. This has had no major effect on houses located in temperate or warm climates.

The new plan applies the 55 Btu loss to areas where the design outdoor temperature is —20 F or lower. Then the limit drops to 50 Btu, 45 Btu, 40 Btu and 35 Btu per sq ft as design outdoor temperatures rise in 10 F spreads to plus 20 F.

If the FHA proposal is adopted it will make an important change in the new house market (see Chart II). There will be a tremendous growth in demand for small units. Units rated less than 50,000 Btu will grow 25 times in demand. At the same time the larger units will shrink in demand. Units under 75,000 Btu now command 47 percent of the market, but in the near future they may take 66 percent of the new house sales.

Shift Would Be Increased

This shift from larger to smaller size units would be greatly increased if comfort engineering standards were universally adopted. Chart III shows how drastically the figures would be changed under these conditions. For example, the small units may increase over 50 times in sales, while the demand for the large sizes above 100,000 Btu may practically evaporate. The sizes under 75,000 Btu would take over about 90 percent of the future furnace market instead of the 47 percent held today.

3) The FHA at present has no minimum property requirements for centrally cooled homes. But it is under pressure to recognize summer air conditioning as a desirable sales feature and has created an advisory committee to guide it in this field.

One of the factors bound to influence FHA decisions is the demand of the electric heating industry for maximum insulation as a prerequisite for an electric heating installation. Their 6-4-2 rule (meaning 6 in. of mineral wool or its equivalent insulation in ceilings, 4 in. in sidewalls and 2 in. in floors) naturally delights the manufacturers of insulation. Since everybody knows that it takes from three to seven times as much energy to remove a Btu of heat as to add it to a house, and since most cooling equipment now sold uses electrically driven compressors, it is logical to also apply this 6-4-2 concept to cooling installations.

This is exactly in step with comfort engineering standards. The wisdom of such a practice is amply demonstrated by our national test program.

Let us look at what the demand for central summer air conditioners will be in the future according to these studies. Units rated at 24,000 Btu or less will represent 32 percent of the market, and units rated between 24,000 and 30,000 Btu represent 29 percent. In other words, these two smaller sizes would satisfy 61 percent of the future new house demand, if comfort engineering principles were followed.

The next two sizes from 30,000 to 48,000 Btu should satisfy 36 percent of the market. There would be no need for a 60,000 Btu unit as a special residential item. The last three percent of the house market could probably better be handled by custom adaptations of commercial units. These figures all apply to the new house market and do not reflect the large modernization business volume.

Costs Not Increased Proportionately

4) The most important new fact developed by the national test program is that the long-revered law of diminishing returns needs a drastic over-haul when applied to building insulation. Cost does not go up in the same proportion when insulation thickness is increased. It does not rise in proportion because labor is such a large factor and labor costs do not materially change with insulation thickness.

A builder can save \$35 to \$50 when he drops one commercial size in heating units and around \$200 when he drops one ton in cooling capacity. When these savings are credited against the cost of comfort engineering improvements that make them possible, we usually find that it is the last inch instead of the first inch of insulation that makes the biggest initial saving.

In general the studies show that the best results come from the maximum use of insulation. A slight improvement in insulation standards, such as FHA proposes in its tentative new minimum property requirements, does increase comfort to the home owner and lowers his annual heating cost, but it rarely offers a compensating saving in initial cost to the builder.

5) Maximum use of insulation, with some care for window shading and ventilation, will also reduce the number of misfits in the installed capacities of heating and cooling units. If 50,000 Btu output heaters and 30,000 Btu capacity cooling units can take care of 60 percent of the market, it is obvious that salesmen and installation men will have less figuring to do.

Air Delivery Problems Reduced

6) Engineers designing a combination unit, or companion units, for heating and cooling face a difficult air delivery problem. Houses insulated only to FHA minimums have heating loads ranging from 1.3 to 2.5 times the heat gain. The same houses when comfort engi-

neered show heating loads 2 to 3 times the heat gain. The ideal ratio is a heating load 3.4 times the cooling load, so that the blower can deliver the same cfm for heating and cooling. In other words, adequate insulation helps reduce this design problem.

7) Three additional design improvements growing out of good comfort engineering are: a) a comfort engineered house is inherently draft free; b) a comfort engineered house is nearly air and vapor tight (a fresh air intake in the cold air return system will make up for air consumed in combustion and air discharged by exhaust fans), and c) comfort engineering practices tend to shield the modern home from outside noises.

8) For the manufacturer, comfort engineering bunches unit capacities into smaller ranges with more units in each group, and that is the customary formula for developing production economies. But it also suggests simplified blower capacities for summer and winter air delivery. This means simplified duct systems and installations.

May Open Cooling Market

9) Earlier I predicted that comfort engineering may be the long-missing key to the potentially tremendous market for central air conditioning systems for the average home. In my opinion, the principal obstacles to this market in the past have been these: a) initial installation costs have been too high or units sized so low as to perform inadequately, b) operating costs have been too high, and c) the so-called comfort provided by poorly engineered air conditioning in stores, theatres, trains and some houses has been far below standard.

Comfort engineering can correct many of these faults and thus can open up this major market if we use it wisely. It lowers initial costs, lowers operating costs, diminishes the risks of inadequate engineering of the installation, and provides a standard of comfort that cannot possibly be achieved by any short cut methods.

10) Sales managers will see the larger markets that are the results of lower prices, fewer models, improved features, more flexible lines and the enormous sales opportunities that await the successful opening of the huge central air conditioning market for modest homes.

Research shows that the potential residential summer air conditioning market is substantially 80 percent of all new houses. We ought to be happy with this knowledge, but unhappy that we haven't yet made a real dent in this market.

Comfort engineering can be used to sell more heating and more residential cooling at more profit. It truly benefits everyone, and hurts no one. I hope the industry will make comfort engineering its greatest sales tool for a profitable future.

This should not be too difficult a task, once the public realizes the benefits to be gained by applying the principles of comfort engineering — the maximum practical use of insulation, the proper shading of sunny windows and good ventilation of roof or attic space.



ARMORY AT KNOXVILLE, IA. contains assembly hall surrounded on three sides by classrooms, offices and special purpose rooms. This structure is designed to handle the training requirements for a 100-man reserve unit. When completed it will be in daily use by permanent party assigned by the regular army

Armory Building Program Opens New Market for Warm Air Heating

Changing ideas in military training have brought on a need for a new style of architecture. Industry representatives have paved the way for warm air heating dealers to bid on 135 lucrative jobs across the country as a starter for a big new sales potential

THE MEDIEVAL castle-like architecture that has for so long characterized the National Guard armories across the nation was once a reflection of the emphasis of the Army's training program. As military tactics have changed, so has the military service training program.

Today, much more emphasis is placed on development of highly skilled reservists. (The Army reserve program is, of course, completely separate from the National Guard program.) This attitude is reflected in armories now being constructed and those planned for the future. Where the old style armory consisted primarily of a huge drill hall, the new structure contains numerous classrooms, kitchen, recreation rooms, rifle range, locker rooms and office space.

Under consideration by the U.S. Army Corps of Engineers at this time are new armories for 135 areas. Estimated costs range from \$57,000 at Tulsa to \$492,000 in Seattle. In general, the program calls for 100-man training units designed to be expanded if necessary at any time. The 100-man training armory will be in the \$150,000 class, depending of course on local costs. Warm air heating for the 100-man armory will result in an estimated average saving of about \$9500.

Until recently the Corps of Engineers approved only wet heat systems for armories. Committee and staff members of the National Warm Air Heating and Air Conditioning Association have worked closely with the Washington, D.C. office of the Corps of Engineers to explain how

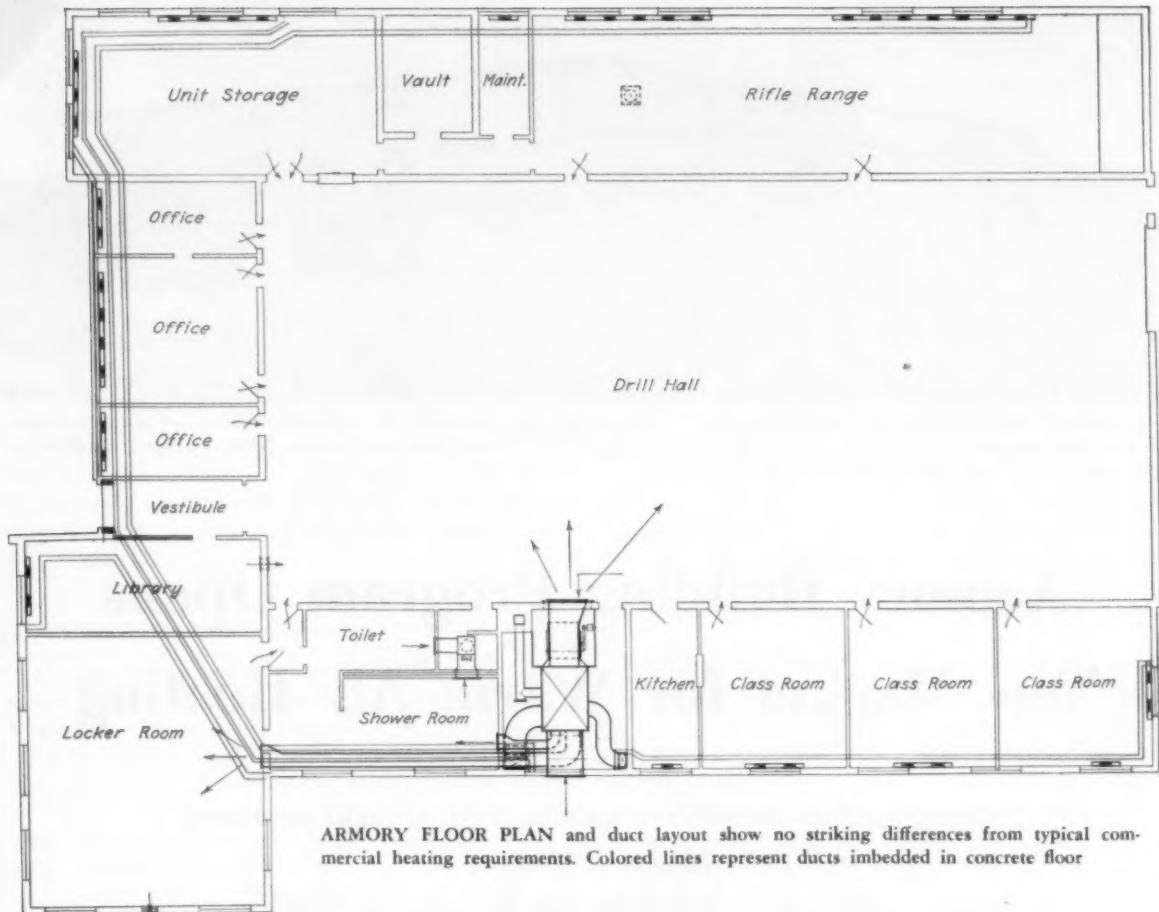
warm air heating systems can be used more effectively to meet the heating requirements of the various spaces.

Door Open for Warm Air

Advantages of perimeter air distribution were outlined in discussions with representatives of the Corps of Engineers and their architectural-engineering firm. The evidence presented on the comfort level to be expected and the saving that would result if perimeter heating is used has been favorably accepted by the responsible parties.

This opens another big field for the warm air heating dealer.

The plans for each armory are basically similar, but variations are included to adapt the building to



ARMORY FLOOR PLAN and duct layout show no striking differences from typical commercial heating requirements. Colored lines represent ducts imbedded in concrete floor

local circumstances. In general, the armories are operated like schools, with classrooms designed for several different seating capacities and to meet varying training requirements. (Training programs for armored units, for example, are considerably different from the programs for infantry and field artillery companies.)

Plans Reflect Modern Ideas

Some of the new armories will be single story buildings; others will include a second story across the front section. But in general, the 100-man armory will follow this basic layout:

The $58 \times 120 \times 16$ ft assembly hall is the center of the building, with 10 ft, 8 in. ceiling rooms located on the front and two sides. The rear of the assembly hall contains large electrically operated doors to admit trucks and other large motorized equipment.

On one side is a 22×83 ft rifle range, maintenance locker, vault,

hallway and a 22×41 ft storage room. On the opposite side are three 20×22 ft classrooms; a 9×22 ft kitchen; a 17×22 ft furnace room; and a 31×22 ft toilet and shower room. Across the front are three private offices (two are 10×22 ft and the third 21×22 ft); a $7\frac{1}{2} \times 22$ ft vestibule; a 13×32 ft library; and a 37×32 ft locker room.

Powered exhaust fans are used in

the kitchen, toilet and shower room, locker room and rifle range.

Battalion headquarters is usually located centrally with relation to the units assigned to its jurisdiction. Where offices for headquarters companies are designated, a second group of offices is usually located across the front and above those used for training program direction.

Heating requirements for armories follow the same general pattern used



SECOND STORY is added to armory at Chariton, Ia. to provide additional office space for regional headquarters personnel whose daily duties require carrying out training schedules for smaller units

for other commercial buildings such as schools, medical centers, one-story office buildings, stores and markets. Bypass dampers provide makeup air, zoning of separate areas and day-night set back control.

The armories are used every day, being occupied by a full-time staff ranging from one officer and three enlisted men to whatever the Table of Organization requires. Thus, heating system requirements must meet the same conditions existing in commercial businesses.

Cooling Is Considered

In a recent conference in Washington, D. C., representatives of many government departments met with members of industry to determine the value of summer air conditioning environmental conditions on employee (civilian and military) efficiency and health. The result of this conference was a marked increase in the evaluation placed on year 'round air conditioning by people in government who can now feel that expenditures for this service are justified. This becomes a strong selling point in favor of the warm air heating system because of the ease with which cooling can be added.

Advance Information Available

The opportunity to bid on this list of 135 armories (and those to be added) will occur when the plans and specifications are in the district offices of the Corps of Engineers covering the locations listed. Dealers desiring to participate in this program can contact the office nearest the site and obtain copies of the plans and specifications. American Artisan will present three additional articles aimed at providing information that will show dealers how to: 1) sell warm air heating to the local officer; 2) prepare and submit a bid; and 3) engineer and install heating systems for armories.

The editors acknowledge the cooperation of Elwood Arends and Homer Feyen, Campbell Heating Co., Des Moines, in providing information for this article.

Here are the proposed locations for 135 armory projects

STATE	PROPOSED LOCATIONS	ESTIMATED COST	STATE	PROPOSED LOCATIONS	ESTIMATED COST
Alabama	Dothan	\$158,000	N. C.	Malone	113,000
	Enterprise	97,000		Buffalo	444,000
	Florence	158,000		Ithaca	184,000
	Livingston	158,000		Durham	225,000
	Opp	97,000		Albemarle	158,000
	Troy	158,000		Grainville	158,000
	Tuscaloosa	224,000		Brevard	97,000
Arizona	Tuskegee	158,000	Ohio	Cleveland	491,000
	Phoenix	444,000		Springfield	175,000
Calif.	San Leandro	444,000		Warren	175,000
	Santa Ana	263,000		Bryan	108,000
Colorado	Pueblo	263,000		Cadiz	108,000
Conn.	Waterbury	263,000		Cincinnati	491,000
Delaware	Seaford	108,000		Columbus	382,000
	Dover	175,000		Fremont	108,000
Florida	Jacksonville	290,000		Newark	108,000
	Orlando	290,000		Mt. Vernon	108,000
	Pensacola	158,000	Oklahoma	Tulsa	57,000
	Tallahassee	158,000		Lawton	166,000
	Savannah	225,000		Miami	103,000
	Ft. Valley	158,000		Muskogee	166,000
	Gainesville	158,000		Ponca City	166,000
Georgia	Hartwell	97,000		Stillwater	166,000
	Tifton	97,000		Eugene	184,000
	Boise	263,000		Medford	184,000
	Centralia	184,000		Pensacola	175,000
	N. Judson	113,000		Chambersburg	175,000
	Indiana	113,000		Dubois	175,000
	Indianola	113,000		Franklin	175,000
Iowa	Davenport	184,000		Glassmore	250,000
	Cedar Rapids	263,000		York	175,000
	Council Bluffs	184,000		Altoona	175,000
	Maquoketa	113,000		Bellefonte	108,000
	Mason City	113,000		Chester	322,000
	Sioux City	263,000		Clearfield	175,000
	Waterloo	263,000		Pottsville	175,000
Kansas	Great Bend	184,000	Penn.	Lewisburg	108,000
Kentucky	Owensboro	175,000		St. Marys	108,000
Louisiana	Alexandria	103,000		Indiana	108,000
Maine	New Orleans	238,000		Clemson	225,000
	Bridgeton	113,000		Spartanburg	158,000
	Dexter	113,000		Orangeburg	97,000
	Hagerstown	175,000		Texarkana	166,000
	Cumberland	175,000		Amarillo	166,000
	Attleboro	184,000		College Station	
	Boston	516,000		(Bryan)	238,000
Michigan	Pontiac	263,000		Dallas	263,000
	Traverse City	184,000		Marfa	103,000
	Jackson	263,000		Marshall	103,000
	Cannon Falls	113,000		San Marcus	103,000
	Faribout	184,000		Wichita Falls	103,000
	Wabasha	113,000		Salt Lake City	263,000
	Greenwood	158,000	S. C.	Montpelier	184,000
Miss.	Jackson	290,000		Chester	113,000
	Laurel	97,000		Covington	108,000
	Meridian	158,000		Newport News	250,000
	Starksville	158,000		Wash.	184,000
	Betheny	\$113,000		Seattle	492,000
	Marysville	113,000		Tacoma	263,000
	Glasgow	113,000		E. Rainelle	108,000
Missouri	Great Falls	184,000		Fairmont	108,000
	Reno	184,000		Ripley	108,000
	Portsmouth	184,000		Wheeling	175,000
	Hempstead	159,000		Appleton	263,000
	Watertown	438,000		Madison	63,000
	Ogdensburg	237,900		Eau Claire	184,000
	Queens	482,000		Madison	63,000
N. H.	Elizabeth Town	113,000	Wisconsin	Richland Center	113,000
	Kingston	113,000			

Blanket Mailing of Standards Card Identifies You as Quality Dealer

Here's a suggested covering letter to accompany the "Standards for Rating Heating Systems" card in a direct mail introduction of this tremendous new selling tool



LAST MONTH, in a 20-page special section, American Artisan presented its interpretation of what has become widely recognized as one of the most powerful selling tools ever made available to the warm air heating industry—the heating comfort stand-

ards, spelled out in non-technical language for home owners and designed to point up the advantages of buying heating equipment on the basis of "quality—not price."

The nucleus of this section is a card containing Artisan's condensed

version of twelve comfort standards. The special section tells how to use it in demonstration, display, advertising and direct mail.

Card Introduces Standards

At the early stage of a sales promotion program the dealer's effort must be concentrated on acquainting the home owner with the comfort standards, showing him how important they can be to his—and his family's—personal comfort and well-being, and pointing out to him where he can obtain a heating system which complies with the provisions outlined in the "Standards". Obviously, the dealer can't contact his entire market and go through his demonstration copy of the card point-by-point with each potential customer. But he can do the next best thing—put the card in the hands of every home owner in his market area along with a covering letter explaining how to use it to evaluate a warm air heating system and offering his assistance and advice in comparing the system with the ideals set forth in the standards.

Presented on this page is suggested copy for a letter to accompany the card in a blanket mailing. Reproduced on your letterhead, this letter accomplishes the desired purposes of an effective direct mail piece. It stimulates interest, prompts the reader to take action, offers advice and informs him of your services and capabilities. It is short enough and simple enough to be read and absorbed by your prospect. Above all, it starts the reader thinking about

Your company letterhead

Dear Mr. Homeowner:

Here's something you'll be hearing a lot about from now on. It's a table of standards, just released to the warm air industry, by which you can rate the performance of your heating system in terms of your family's comfort and health.

Translated into non-technical terms from recommendations by industry authorities, the standards describe the comfort conditions produced by three grades of heating systems.

How does your heating system stack up?

You can easily check the comfort conditions in your home against the twelve standards by observations and simple temperature measurements. We'll be glad to help you evaluate your system and discuss each point with you, at no obligation.

There is no longer any need to settle for less than ideal comfort in your home. The enclosed card gives you a point-by-point yardstick for measuring the quality of your heating system. Make us prove that we can provide in your home all the comfort conditions described under the "GOOD" column.

Our heating engineer will be pleased to call on you and explain how your system can be adjusted to provide the conditions outlined in this set of standards. Call AB 1-2345.

Yours very truly,

Advance Heating Co.

comfort in terms of the heating standards, at the same time identifying your firm with the high ideals they set forth. Also, he will be more susceptible to followup mailings, calls and advertising once he becomes aware of what the standards can mean to him.

Reach Entire Market Area

The mailing list should be as comprehensive as possible, preferably

reaching all home owners and potential home buyers in the area you serve. Mailing lists are available from several sources, among which are:

- 1) your list of past customers
- 2) municipal and county records
- 3) city directories
- 4) credit associations and club rosters
- 5) general mailings "to occupant" of every home
- 6) mailing list agencies

7) lists of new families from utility companies

Reprints of the standards card published in the July Artisan are available at prices quoted elsewhere in this article, with or without dealer's imprint.

Subsequent articles in American Artisan will present samples of newspaper advertisements, radio and TV scripts and other useful vehicles geared to promoting these standards to the public.

HERE ARE QUANTITY PRICES FOR IMPRINTED STANDARDS CARDS

REPRINT ORDERS for the "Standards for Rating Heating Systems" from dealers, wholesalers, manufacturers, and association secretaries indicate that all phases of the industry are recognizing the sales appeal of this non-technical promotion tool. As a further help to dealers in using the card for direct mail promotion, American Artisan will imprint, in the space provided on the card, the dealer's company name, address, and telephone number, plus the slogan, "We subscribe to the correct standards of warm air heating comfort." Prices for quantity orders, with or without imprints, are listed below:

QUANTITY	TWO-COLOR CARD WITHOUT IMPRINT	ADDITIONAL COST FOR IMPRINTING
50	\$ 1.00	\$4.10
100	2.00	4.10
200	4.00	4.50
300	6.00	4.90
400	8.00	5.30
500	10.00	5.70
1000	20.00	7.70

To: The Editors
American Artisan
6. N. Michigan Ave.
Chicago 2, Ill.

Please send me, at the prices listed above, _____ reprints of the Standards for Rating Heating Systems card, in two colors on heavy stock suitable for mailing or for display. I would _____ would not _____ like to have my company's name, address and telephone number imprinted in the space provided on the card, as indicated below. I enclose a check or money order for _____ to cover printing costs. Bill me for mailing charges incurred.

I am a dealer _____ wholesaler _____ manufacturer _____ other _____.

(Please print)

Name _____

Company _____

Street address _____

City and state _____

Telephone _____

MAIL
THIS
COUPON
TODAY
!

Individual Perimeter Systems



THIS SERIES of articles, under the general heading, "TRAINING PROGRAM" . . . in Print," is designed to help dealers train their engineering, service, managerial and sales personnel in all phases of their operations. These articles are selected for their informative value and are presented as reference material for developing know-how among employees in situations which are likely to arise. Some of the previous articles in this series have discussed:

- electrical problems
- humidity control
- management techniques
- air distribution
- sales presentations
- school heating
- promotion ideas
- attic fans
- selling builders
- attention to details
- installation procedures
- fume removal
- job estimating
- outside air intakes



A NEW 30-ROOM high school in St. Louis Park (Minneapolis), Minn. incorporates the newest design principles for school buildings. In addition to being heated exclusively with individual warm air systems (39 furnaces) the school is built in hexagonal clusters of classrooms to permit maximum use of outside walls for lighting. Exterior walls feature wide areas of a new type glass block designed to diffuse natural light evenly over the interior area. Acoustical tile ceilings, vinyl plastic floors for corridor and gymnasium, and elimination of basement areas are some of the features incorporated in the design of the school, which may well become the prototype of schools of the future.

School Is Inexpensive

The school has been designed to accommodate 1200 students. Its cost is \$583,324 for 68,413 sq ft. Reducing these figures to a cost of \$8.53 per sq ft shows this school to be very low in cost — one of the most inexpensive schools that has been built in several years, according to B. J. Knowles, St. Paul architect who designed the building. Today's conventional school is costing between \$14 and \$18 per sq ft, Mr. Knowles adds.

The school, a Christian Brothers project, is known as the Benilde High School for Boys.

One of the major contributors to the reduction in the overall construction cost of the school is the use of individually controlled heating systems for each classroom area. This feature is also expected to produce lower maintenance and operating costs. Total cost of the heating systems is \$37,100, not including electric wiring or fuel piping costs.

The building now consists of: 17 classrooms (average 750 sq ft); an audio-visual lecture hall (820 sq ft); a general science laboratory (1100 sq ft); a biology laboratory (1340 sq ft); library (2760 sq ft); wood shop (1630 sq ft); automobile shop (1800 sq ft); and a shop for both electricity and mechanical drawing (815 sq ft).

WHAT'S YOUR PROBLEM?

The American Artisan's 'TRAINING PROGRAM' — IN PRINT will explain the whys and wherefores of some of the dealer's problems, tell what to do about them. You will want the members of your organization to study these articles carefully, keep them for future reference . . . If you have a problem you'd like to see covered, write Clyde M. Barnes, Editor, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

Heat 'Clustered' Classrooms



Here's a case history which points the way to successful handling of heating requirements in modern school buildings designed for expansion

sq ft). Other facilities are a 300-seat cafeteria (3750 sq ft) and kitchen (1400 sq ft); a combination 1800-seat auditorium and 1100-seat gymnasium with stage (11,750 sq ft); two locker rooms (each 970 sq ft); teachers' lounge; administration office suite; and many storage areas.

With the hexagonal cluster design, it is practical to add new classrooms to the main building at very little additional cost.

Rooms Have Perimeter Heating

Each classroom has perimeter heating. Warm air discharges into a specially designed narrow plenum behind a bookshelf which is set against the outside wall and reaches the lower edge of the window sill. The air is discharged from narrow diffusers about 2 ft apart at the window sill level.

Return air is removed from the classroom through grilles located high on the partition walls between the classroom and the furnace room. The return air is not introduced into any return duct system but into the furnace room itself which becomes a return air plenum. Thus, plenty of warm air is provided for combustion as well as for makeup air for the air distribution system which obtains most of its air from an outside air intake to provide the proportion of ventilation needed to meet school heating requirements. Surplus air is

discharged from the classrooms into corridors where mechanical ventilators discharge the air outside. Grilles in the classroom doors admit the air to the corridors.

Furnace for Each Classroom

Each classroom is heated by a separate furnace and in a similar manner. Outside air volume is controlled by a motorized damper which is actuated by a duct thermostat. The thermostat is adjusted to provide outside air volume based on outside air temperatures. At 65 F outdoor temperature the system provides 100 percent outdoor air.

Fire dampers are installed in each supply duct as it passes through the fireproof wall and behind each return air grille.

Each furnace has a prefabricated chimney which extends through the roof of the furnace room and is covered by a roof cap.

All air distribution and return air

systems are designed to have a static pressure loss of 0.02 wg or less.

Furnace specifications read: heat exchanger—14 ga nickel-copper alloy steel; filters—two deep; blowers—rubber cushion mounted; burners—gas, ribbon type, slotted; controls—fan, limit, solenoid gas valves, and pilot safety.

Each furnace is provided with a flexible fireproof connection at all points where metal ducts are attached. The connections are at least 6 in. wide and have ample slack between duct ends.

Day-Night Switches Used

Temperature control is obtained by a thermostat and a manual day-night switch which operates the furnace blower constantly when set for day operation of the gas burner in response to the thermostat setting. This makes it possible for the class instructor to select the most desirable temperature.

Civic and business groups are interested in this school for various reasons:

TAXPAYERS wonder whether a school of this type might be the solution to their steadily climbing local property tax bills.

EDUCATORS wonder whether they can do a satisfactory job of teaching in an economy-type school.

BUILDERS wonder whether completion of the school may mean the start of a trend toward cheaper school construction.



When the day-night switch is set in the night position, the control system reverts to operation of the blower on an intermittent cycle based on bonnet temperature. The thermostat is adjusted for the recommended 65 F night setting. (During mild weather the furnace is shut off at the electrical cabinet.)

Turning vanes are used in ducts wherever inside bends have less than 1 width radius. All changes in size or cross section are made with long

tapers. Fresh air openings are made watertight and provided with drains.

Variables Solved Individually

Rooms used for other than class work follow the same installation design but utilize larger furnaces and have air distribution patterns which closely handle the variables which are directly related to the specific areas. Some of the variables that had to be handled individually were encountered in the cafeteria, kitchen, gymnasium and auditorium, work shops and corridor entrances.

The cafeteria is 51 X 83 ft with 67 lineal ft of exposed wall. This required a 420,000 Btuh input furnace providing 4000 cfm against a static pressure of $\frac{3}{8}$ in. wg. An overhead duct system that directs air streams to blanket the exposed wall is supplied from a furnace in its fireproof machine room. The return air grille in the machine room wall is connected to a return duct which leads to the furnace. (The furnace room is not used as a plenum chamber in this case.) Outdoor air is provided

through an intake similar to that used for classrooms.

Kitchen Air Exhausted

The 34 X 43 ft kitchen is heated by a horizontal furnace which hangs from the ceiling on $\frac{3}{8}$ in. steel rods. The furnace discharges the air toward one of the outside walls. (The other outside wall is lined with refrigerated storage rooms.) A free opening return is used; makeup air is supplied from an outside air intake. A large volume of air (5000 cfm) is discharged from this room by a power roof ventilator connected to a stainless steel hood over the cooking area. A second powered ventilator also draws 2000 cfm of air from the dishwashing department.

The 100 X 116 ft gymnasium and auditorium is heated by two 840,000 Btuh input furnaces with twin fans which quietly move 10,000 cfm of air. The air is discharged into the area through ornamental iron grilles. Outdoor air is supplied through intakes similar to those used for classrooms. The return air is drawn through grilles in the stage wall.

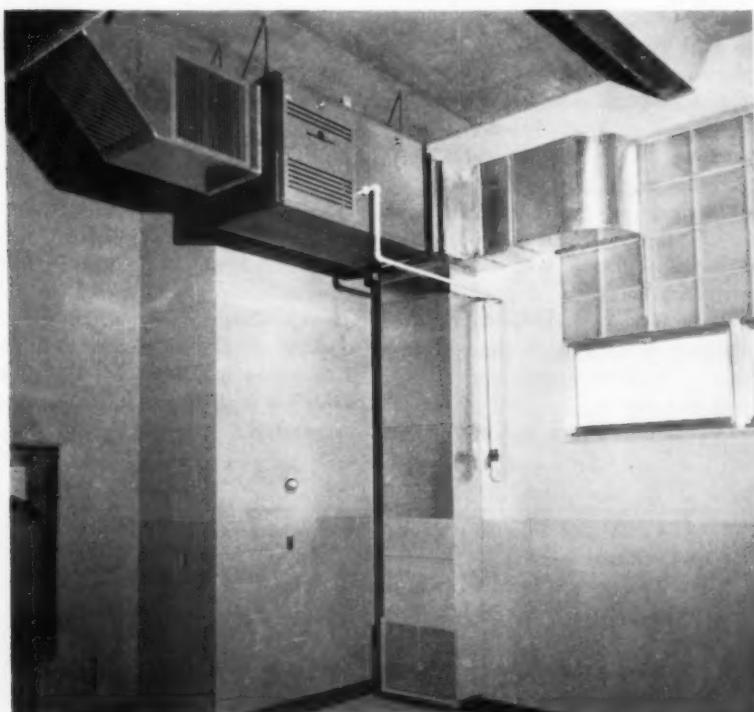
Two exhaust air connections are made in the return air duct. The exhaust ducts are connected to two powered roof ventilators which discharge 5000 cfm each.

Slab Ducts Heat Corridor

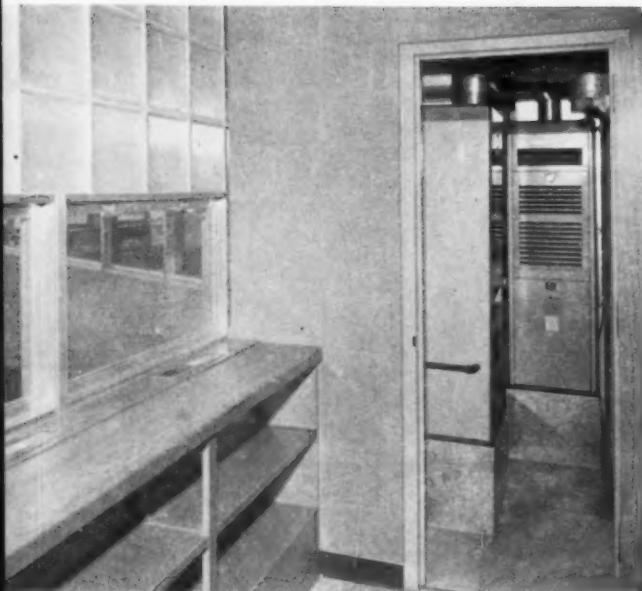
Corridor entrances are heated by a combination convection-radiant system. Warm air from the furnace heating a section of the corridor passes through ducts embedded in the concrete slab floor, then to air outlets near the corridor ceiling. The heated slab warms the air entering the corridor from the doorway, and quickly evaporates snow and water brought into the building.

The ducts embedded in the slab were supported while the concrete was poured, then covered with $2\frac{1}{2}$ in. of concrete.

Return of corridor air through a grille in the furnace room door completes the air distribution system. No outside air is supplied to furnaces providing heat for the corridors. The



CEILING-MOUNTED horizontal furnace utilizes space normally serving no useful purpose in areas where manual training shop instruction is provided



WHEREVER POSSIBLE, two furnaces were installed in the same room. Counterflow furnaces are mounted on platforms so discharge plenum is above the concrete slab floor. Heated air discharges into extended plenum built between the bookcase and the wall



RELATIONSHIP BETWEEN flow of air from perimeter air supply and return air grille is clearly shown. Note that the thermostat is located on wall where it is unaffected by sunlight entering the room, making it responsive to the selected room air temperature only

engineers reasoned that frequent opening of the outside doors, positive exhaust from powered ventilators and lack of prolonged occupancy eliminated the need for introduction of outside air through the furnace for these areas. Most washrooms are 15 × 26 ft, too small to be heated by individual furnaces, so are heated by furnaces supplying adjacent areas (usually corridors). Washroom air is exhausted through ceiling grilles and a duct system connected to a powered roof ventilator.

A total of 39 furnaces handle the heating load. Input capacities and the number of furnaces in each category are as follows: 19 are 30,000 Btu/h; five are 100,000 Btu/h; two are 105,000 Btu/h; seven are 120,000 Btu/h; two are 140,000 Btu/h; one is 263,000 Btu/h; one is 420,000 Btu/h; and two are 840,000 Btu/h. Highboy, counterflow and horizontal (ceiling mounted) furnaces are used. Twenty-eight are counterflow models, seven are horizontal and four are highboys.

Twelve power roof ventilators pro-

viding an exhaust capacity of 19,150 cfm, and seven gravity roof ventilators ranging from 9 to 28 in. in throat size are used.

The editors acknowledge the cooperation of C. P. Neil, Neil-Hubbard Heating and Air Conditioning Co., St. Paul; Standard Heating Co., Minneapolis; and B. J. Knowles, St. Paul, architect, in providing the information in this article. Don W. Schaberg, American Furnace Co., St. Louis, supplied the photographs reproduced on these pages.

Black Stainless Steel Adds Contrast to Office Building

THE USE OF ebonized (black) chromium-nickel stainless steel, in combination with conventionally finished Type 302 stainless, resulted in an exterior of unusual beauty for the new CIT Financial Corp. building in New York City.

A relatively new entry in the construction field, ebonized stainless steel allows the designer to add contrast and emphasis to building design. Stainless steel in its natural color, already accepted as a dependable building material, is employed by architects for its appearance, corrosion resistance and high strength-to-weight ratio.

The patented ebonizing process, developed by Armco Steel Corp., is accomplished by immersing stainless steel in a molten bath of dichromates for a short time. This is

said to result in a smooth, permanent, black oxide film as corrosion-resistant as the original stainless steel surface. The ebonized finish is naturally flat in tone, but waxing or oiling will bring out a gloss. Royalty-free licenses to use this process have been issued.

To dramatize both vertical and horizontal lines of the eight-story CIT building, black granite slabs were erected as curtain walls between windows and floors. Running vertically and horizontally are Type 302 chromium-nickel stainless steel mullions, channeled to receive inch-wide strips of the ebonized stainless steel. Over 40,000 sq ft of this specially treated stainless steel was inserted in the mullion channels. The result is a tonal variation with a heightened effect of depth and form.

Wholesaler Tells Standards Story To His Salesmen



WHOLESALE Charles R. Bennett shows Artisan's standards sales card to his salesmen and explains its use



Standards Story Must Be Carried to the Public

It can be done if they are promoted and used at the dealer level, this wholesaler declares. He sees \$200 more per job for the dealer who will design and sell the 'Good' system

AN IDEA such as the heating comfort standards, which were suggested as a sales tool in last month's Artisan, will be of little value to the industry unless they can be put across to the public. This will call for the support of all segments of the industry.

A Chicago wholesaler, Charles R. Bennett, Armstrong Heating Supply Co., is an enthusiastic supporter of the standards and what they can do to help the industry sell quality heating systems at an adequate price. Mr. Bennett followed the standards story in the Artisan as it has been developed over the past three years. He read each of the 19 Artisan articles written by Professor S. Konzo of the University of Illinois in which the standards were first proposed. He read the follow-up articles which were published last winter. He cooperated with Artisan's editors in the initial stages of preparing the special section published in July. This special section explains in detail how a dealer can use the standards as a sales tool. It presented a standards sales card which outlines the standards in table form.

Shortly after Artisan's July issue appeared, Mr. Bennett called a meeting of his salesmen. He had on hand a supply of standards sales cards. (He was among the first to order extra copies.) He pointed out to the salesmen

that the standards must be promoted and used at the dealer level.

"If they are properly used, they can make a big difference in the growth and financial success of this industry," he said. "I feel that a dealer could get \$200 more per job if he would design and sell every system based upon the specifications under the 'Good' classification of the heating performance standards card. When these standards have been put across to the consumer, American Artisan will have written history."

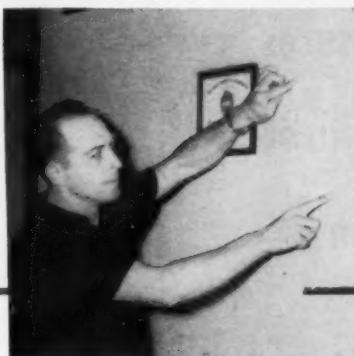
Each salesman was provided with 50 standards cards. Mr. Bennett instructed them to review the special section in the July Artisan. Then he asked them to work with the dealers they call on to put this great selling tool to work immediately. By thus joining forces with the dealers, most of whom will have already read the special section, it is expected that quicker results will be achieved.

To make certain that all dealers buying from Armstrong Heating Supply Co. see the standards special section as soon as possible, Mr. Bennett ordered an additional supply of the standards cards and reprints of the special section. These have been sent to all dealers on his mailing list.

Wholesaler's Salesman Tells Dealer and Dealer Tells Customer



SALESMAN Carl Jones carries standards story to dealer



DEALER Bob Kuykendal displays standards in his showroom



CUSTOMER gets the standards story from dealer

In order to report additional dealer reaction to the use of the standards in their sales approach, an Artisan editor accompanied one of Armstrong Heating Supply's salesmen, Carl Jones, as he called on several dealers. Mr. Jones pointed out that most dealers have developed their own techniques of selling which fit the type of business that they do. The standards card and the standards story, he said, easily fits into the individual dealer's own sales story. The best way to aid the dealer, Mr. Jones indicated, is to go over the sales story and show how the standards can be worked into the present approach in order to achieve the most favorable reaction from the prospect.

One of dealers contacted by Mr. Jones was Robert Curran, Republic Heating Co., Chicago. This company concentrates on the modernization market. It emphasizes its furnace cleaning and repair service and uses these services as a prime source of leads for new equipment sales.

Mr. Curran said that he felt the standards card should be attached to the layout for the proposed modernization of the heating system. Then as the dealer's salesman reviewed the plan with the prospect, he could describe how

its various features were designed to provide the level of comfort called for under the "Good" classification as shown on the card. Mr. Curran felt that the standards would be of great value in convincing customers that a quality system was well worth the additional money.

Another dealer called upon was Bob Kuykendal, who together with Chris Tsoutsias operates Universal Heating and Air Conditioning Co., Chicago. Mr. Kuykendal was particularly impressed with the value of the heating system performance standards in selling against price competition.

He suggested that when a prospect says he wishes to obtain additional bids on a heating job, the dealer or salesman should leave a standards card with him. The prospect would then be advised to make certain that any competitive bids are based on the same quality system as shown on the standards card.

Too many times, Mr. Kuykendal said, the prospect will go out and find a lower bid and the next thing you know you've lost the job because the prospect was unable to compare the values that were offered. This situation no longer exists with the printed standards of heating system performance in the prospect's possession.

As More Dealers Use the Standards, Their Value Grows



STANDARDS story is repeated to dealer Bob Curran

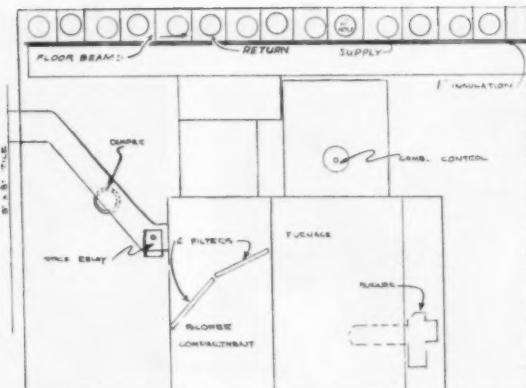


ANOTHER customer learns how the standards protect him

Heating Test Measures

Thermal Lag in Concrete

Floor Panel System



... in which warm air is forced through hollow cores in cement floor from supply trunk and back through adjacent return cores without being circulated into the rooms

IMPROVED ENGINEERING and installation practices are inevitable when performance data from actual jobs can be evaluated to point out the principles employed and the results of their application. With this objective in mind, the National Warm Air Heating and Air Conditioning Association undertook a study of five forced warm air heating systems in different houses that point the way to better heating performance, both from a comfort and a mechanical point of view. This and subsequent articles in this series are reports of the results obtained from the study.

This article describes a forced warm air, floor panel, closed circulation heating system in which the warm air is circulated through tube-like spaces cast into prefabricated, precast concrete floor spans. The air is not circulated in the rooms to be heated but passes from the supply trunk duct into alternate passages within the floor to the outside edge and then returns through adjacent passages to the return air duct which parallels the supply trunk duct.

House Has Masonry Walls

This is an unusual one-story masonry house with a flat deck roof and a full basement. It has a living room, dining room, kitchen, bathroom and two bedrooms. The furnace is located at one end of the basement.

The house was constructed in 1955 at a total cost of \$19,000 including land, but without a garage. The total

cost of the heating system was said to be \$1200, but no indication was given as to the amount attributed to the special concrete floor, which also serves as the air distribution medium.

The basement is totally enclosed by masonry. The floors are concrete with 8 in. concrete block sidewalls. The ceiling is special prefabricated hollow concrete beams.

Walls Provide Little Insulation

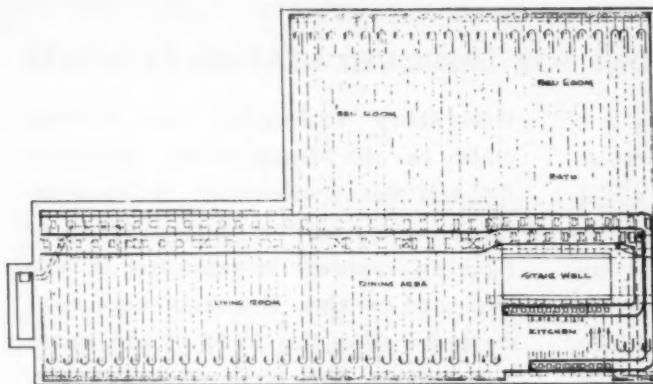
The sidewall in the living area is 8 in. concrete blocks with a plaster finish over rock lath. The walls have very little insulating value. The ceiling is a flat deck built-up roof with aluminum foil insulation.

The metal windows are either fixed (non-opening) or sliding types. The sliding windows are not tightly fitted nor are they weatherstripped; storm sash is not used. The doors are well fitted but do not have storm doors.

The floor of the house is constructed of a number of 8 × 8 in. steel reinforced, hollow beam precast concrete units laid side by side and keyed together with cement grouting. Through the center of each beam is a 6 1/4 in. dia hole, which is used as a warm air conduit and is a part of the air distribution system. Each beam extends the entire width of the basement.

The design temperature is -10 F and the degree days average about 5500 per year.

The design heat loss for the building is 99,619 Btuh —



SUPPLY CORES RUN full width of house from trunk duct, connect to adjacent cores which conduct air back into return trunk. No supply nor return air registers are used

THIRD IN A SERIES OF FIVE ARTICLES ON UNUSUAL HEATING SYSTEMS

79,554 Btuh for the first story rooms and 20,065 Btuh for the full basement. The design heat loss for the first story rooms is equivalent to 74.3 Btuh per sq ft of floor area. Values are high and indicate a small degree of weatherproofing.

The furnace is a conventional highboy, oil-fired unit with 1.20 gph nozzle, 168,000 Btuh input rating and a bonnet capacity of 154,500 Btuh. The 10 in. blower is driven by a $\frac{1}{4}$ hp motor.

Supply Cores Adjacent to Returns

The air distribution system consists of supply and return trunk ducts and concrete floor units. The $6\frac{1}{4}$ in. dia hollow core of every other floor beam unit is used as a warm air conduit. Each core is connected at the far end with the core of the adjacent floor beam to form a return air conduit. All warm air conduits are connected to an extended plenum trunk duct from the furnace at one end of the basement. In the narrow section of the house the warm air enters each floor beam unit at the wall and moves to the opposite side of the building to enter the adjacent return air passage. In the wide section of the building, the warm air is introduced at about the center of the floor beam units and then travels in opposite directions to reach the edges of the building. The air then enters the adjacent return air passages.

The trunk ducts extend the entire length of the basement. Then return air duct construction resembles that

of the warm air supply, with the return trunk duct connected to each alternate floor beam unit. It is installed beside the warm air duct and is the same size. The warm air trunk duct is made up of 34 ft of 10×18 in. duct, 13 ft of 10×14 in. duct, and 22 ft of 10×8 in. duct, for a total distance of almost 70 ft. The return duct is the same size and about 63 ft long. Both trunk ducts are insulated on the top with 1 in. glass wool insulation. This is an entirely closed system with no supply nor return air registers.

Weather Moderate During Test

The outdoor temperatures varied from a low of 48 F to a high of 62 F on the first day; from 47 F to 77 F on the second day; from 44 F to 65 F on the third day; and from 39 F to 45 F on the last day. Most of the data was taken when the outdoor temperature was nearly 60 F. The sun was shining most of the time during the four day test period and the wind velocity was low. On the test day the sun was shining brightly and the wind was moderate from the southwest. No preliminary adjustments were made by the mobile laboratory engineer.

The room thermostat is located $6\frac{1}{2}$ in. above floor and a 7 in. barometric type draft regulating damper is used in the smoke pipe.

The following control settings were maintained:
Thermostat setting: 75 F day and night.
Differential: not determined.

FIELD TESTS SEEK SUGGESTIONS FOR IMPROVED HEATING PRACTICES

The National Warm Air Heating and Air Conditioning Association maintains a mobile laboratory which moves into an area and surveys heating and cooling equipment installed in residences. No effort is made to alter any of the conditions found. Data is secured by the mobile

laboratory technician and turned over to the Engineering Advisory Council for evaluation. A summarized report of five unusual types of heating systems is reported in this series of articles. The tests were conducted during the 1954-1955 heating season. This is the third report.

Fan switch cut-in point: 175 F.

Fan switch cut-out point: 125 F.

Limit switch cut-out point: 275 F.

Limit switch cut-in point: 225 F.

The occupants are a young couple. Their previous living quarters were heated by a hot water floor panel system. They complained that the hot water panel system "had hot spots on the floor." They are quite satisfied with the warm air panel system because of the absence of hot spots and the "more even room temperatures."

Temperature Differentials Acceptable

Table 1 summarizes recorded room air temperatures and temperature differentials encountered when the outside air temperature was 59 F and the thermostat was set at 75 F. The temperature differential of 1.0 deg from floor to ceiling amounts to 0.63 deg per 10 deg change in indoor-outdoor temperature difference. Also, the temperature differential of -0.6 deg from floor to the 30 in. level amounts to -0.38 deg per 10 deg change in indoor-outdoor temperature difference. The negative character of this differential is most unusual, indicating that the air near the floor is warmer than the air at the 30 in. level. Both temperature differentials are most acceptable from the standpoint of comfort.

The warmest room is the living room (77.0 F) and the coolest is the adjoining dining space (71.7 F). Both rooms are exposed to the east, but the living room is also exposed to the south. The solar heating effect in this house is considered large. The temperature throughout the house rises rapidly after only about 15 minutes of sunshine at 9 a.m. On each of three days the room air temperatures rose from 73 F at 9 a.m. to about 83 F at about 5 p.m. The short period room temperature variations are less than 1.0 deg but the daily swings are very large and undoubtedly reflect the solar heat gain.

Floors Are Warm

Every area of the floor is warm; no point is less than 71 F. The floor surface temperature in one area of the

living room reaches 83 F, which is approaching the maximum recommended temperature (85 F) for panel heating according to the ASHAE Guide. There are also areas in the bathroom and dining room where floor temperatures exceed 80 F. Remember that these tests were conducted during mild weather (59 F). This leads to speculation concerning possible floor temperatures under more severe weather. The weather conditions during the testing period provided no opportunity to test the performance of the system at near design outdoor temperatures.

Concrete Floor Causes Thermal Lag

Undoubtedly the floor surface temperatures reflect the operation of the system at night when the furnace is delivering air at temperatures from 170 to 195 F. Concrete floor construction has considerable capacity for heat storage and a substantial thermal lag. It would appear then that somewhat lower floor surface temperatures might have been secured if the relationship had been closer between the outdoor air and the temperature of the air delivered by the furnace to the heating ducts within the concrete floor.

The relative humidity varied between 41 and 46 percent during the four day test period, with the highest RH occurring on the warmest day of the test.

Relative humidity of about 45 percent when the outdoor temperature is 55 F is not unreasonable, although somewhat high. In colder weather the relative humidity will automatically be reduced, and no trouble is anticipated with window condensation.

The basement dew point temperature was slightly less than that in the living area, but the relative humidity was slightly higher because of the lower air temperatures. Since the floor is concrete no wood moisture content could be recorded.

Static Pressure Highest on Return Side

The static pressure on the return air side is considerably larger than that on the warm air side. This is sur-

TABLE 1—TEMPERATURE DIFFERENTIALS within rooms and between rooms were most acceptable when outdoor temperature was 59 F and thermostat was set at 75 F

	Living room	Dining room	Kitchen	Bath room	Bedroom #1	Bedroom #2	Average
5 in. below ceiling	77.0	77.8	77.0	75.1	75.0	75.4	76.3
30 in. level	77.0	71.7	76.6	75.0	73.9	73.5	74.6
5 in. above floor	76.8	75.7	76.0	75.6	73.7	73.3	75.2
Differentials between levels							
Ceiling-floor	0.2	2.1	1.0	-0.5	1.3	2.1	1.0
30 in. level-floor	0.2	-4.0	0.6	-0.6	0.2	0.2	-0.6
Floor surface	76.8	79.8	78.2	79.8	74.8	74.3	77.2
Floor air to floor surface	0	-4.1	-2.2	-4.2	-1.1	-1.0	-2.1
All temperatures are in deg F							

prising since the size and arrangement of each side of the duct system is alike.

The flue gas temperature is moderately high, but the flue gas loss is not excessive. Based on nozzle capacity rating of 1.20 gph the calculated air flow rate is 1047 cfm, which can only be considered approximate. Since the system is closed, it was not possible to make accurate determinations of the flow rate at registers or intakes. The flow rate, if air were permitted to enter the rooms, would show recirculation to be about 3.6 changes per hr.

Burner Cycles Frequently

As shown by temperature records, the burner cycles were frequent on the test day. During the three hour period from 9:50 p.m. to 12:50 a.m. the burner was in operation about 85 percent of the time. From 12:50 a.m. to 3:05 a.m. (2 hr, 15 min) the burner remained off. The temperature cycle was not an ideal one. Remember, however, that in a closed cycle warm air panel system a time lag occurs between the delivery of the heat at the furnace and the release of heat from the floor slab. Hence, uneven and large variations in plenum temperature are concealed so far as room air temperature conditions are concerned.

From the evidence available, the burner appears to operate about 50 percent of the total time at an outdoor temperature of 40 F. If so, the burner would not be adequate for a design day of -10 F.

The blower operating times are not much longer than the burner times since the blower does not operate when the burner is off. This suggests the need for a better fan switch adjustment.

Fan Switch Adjustment Needed

The weather during the test period was mild; therefore, the operation of the plant in cold weather cannot be adequately foretold. During mild weather, however, it was observed that the living room temperature was about 70 F in the early morning but drifted slowly to 80 F or more by 5 p.m. Part of this overheating can be charged to solar heating, but part of it is undoubtedly due to the storage effect and slower response of the floor slab. From a control standpoint some improvement in operation would be desirable, and some steps in this direction should be possible by making adjustments of the fan switch.

The fourth article, describing another unusual heating system, will be presented next month.

Sheet Metal Workers and Insulators Sign Pact

AFTER SEVERAL unsatisfactory attempts, an agreement acceptable to both unions has been signed by the Sheet Metal Workers International Association and the International Association of Heat and Frost Insulators and Asbestos Workers. The agreement covers the application of insulating and acoustical materials on the inside and outside of sheet metal ducts and fittings in connection with ventilating and air conditioning systems. The new agreement clarifies an earlier agreement between the two organizations signed April 13, 1939.

The new agreement recognizes that all insulating materials applied on the outside of sheet metal ducts and fittings come within the jurisdiction of the IAHFIAW. The sheet metal workers are given jurisdiction over all materials required for the prime function of acoustical treatment applied inside of sheet metal ducts and fittings in shop or on job site. On the other hand, all materials required for the prime function of thermal insulation when applied to sheet metal ducts and fittings on the job

site is recognized as coming within the jurisdiction of the IAHFIAW.

In addition, all materials applied inside of fan housings, all casings, fresh air intakes, plenum chambers, etc., are also recognized as within IAHFIAW jurisdiction. An exception is made where a casing or plenum chamber consists of a sandwich of two layers of sheet metal with insulation between, when such casing or plenum is entirely prefabricated in the shop. This work is within the jurisdiction of the SMWIA. In addition, where a sound trap is installed in the field on a fresh air intake, the installation shall be performed by sheet metal workers.

The agreement provides for periodic review of the terms by committees of the two organizations. Any dispute or controversy arising out of the agreement is to be referred to and settled immediately by the general presidents of the two unions or their designated representatives. It is understood that the agreement shall have no bearing on any current or future disputes.



This dealer has found the best prospects for cooling sales to be in good, well-established neighborhoods with homes costing \$25,000

Therefore, at the present time he is concentrating his selling efforts in the upper income groups. He says . . .

Cooling Sales Program Must Aim at Right Market

"To SELL central home cooling today you have to know where to sell it. At present in our market it sells best in the high income areas, and I believe the market in lower-priced homes is still four or five years away." These are the thoughts of a prominent Columbus, O., heating-cooling dealer.

In the not too distant future, this dealer believes, you will be able to sell summer air conditioning for homes almost everywhere. But today, he says, unless we concentrate our efforts in the higher income groups, we feel we would not be getting a good enough return on the promotion dollar.

This firm has had good results by following this policy. Naturally, they realize that sales are where you find them. Therefore, they use newspaper advertising to reach a broad market. They also utilize old customers and personal contact to develop sales leads. But a key part of their program is carefully aimed at that portion of the market where experience has shown the best results can be obtained.

When conducting a sales campaign, they select a good

residential neighborhood, preferably one where the people have been living in their present homes for 10 to 15 years and where they probably intend to continue living. In this type of neighborhood the homes are mostly paid for or the mortgages have been reduced to a low level.

Sales Begin in \$25,000 Homes

Generally, this company finds that the major portion of central cooling sales begin in homes around the \$25,000 level and up. A high percentage of the homes over \$30,000 will have summer air conditioning in the not too distant future, they believe. Therefore, this is the market to concentrate on today.

When central cooling is installed in one home in a neighborhood it helps greatly to open up the area for additional sales, this dealer says. This is a good reason why dealers who sell and install cooling should have it in their own homes and offices, he points out. Most of the company's employees now have central cooling in their own homes.



THE COMPANY'S well landscaped white building presents an attractive appearance. The firm's name provides strong identification with cooling

In line with the company's philosophy of concentrating its sales promotion efforts on today's selective market, this Columbus company has used a special direct mail list which includes only families with incomes over \$7500. By limiting the list in this manner, they have had excellent results.

They found that many of the people in this selective market intend to add central cooling eventually, but it takes a special selling effort to convince them that they should do it now. Naturally, a spell of hot weather helps many of them to make up their minds. But it is important to convince as many as possible before the hot weather hits, so that the work load can be spread as much as possible.

Finds Women Hardest to Sell

Women are usually hardest to sell, this dealer states, but after they have been sold and the cooling equipment is in use they become the biggest boosters. He believes that women are hard to sell because they have their minds made up that they want a new car, new carpeting, a fur coat or some other expensive item. They may also shy away from cooling because they have felt chilly in public buildings where the temperature has been kept low. It takes a special effort to overcome this resistance.

In selling central cooling, the company has found that people who have used room units are more easily sold on the changeover to central equipment. The health angle is important, too, and the company has made numerous sales to heart patients and people suffering from allergies.

When buying central cooling, people are more cautious than when buying a heating system, the firm has found. They seem to feel that cooling is something new and that they should be careful to get the best possible system. Because of this fact, there seems to be less price buying.

Ventilated Attic Recommended

When selling cooling, the firm points out to all of its customers that for maximum operating efficiency the average amount of ceiling insulation is not enough and



BEFORE AND AFTER photos are always used in making a sales presentation on modernization. This unusual one shows the old furnace still in place as the new year 'round equipment is being installed

that it is important to have a well ventilated attic to reduce the heat load.

They have found that customers seldom ask about the cost of operating central cooling equipment. However, this may be because most sales are made in the higher income groups. In the future, as the demand increases, operating cost will undoubtedly become a more important factor.

This dealer feels it has been a definite aid to use the term air conditioning prominently in the company's name. The name was chosen in the 1930's. Therefore, the firm has a long established reputation in the field. It started with commercial and industrial work, but entered the residential market in 1948.

It is important to instruct customers in the proper operation of cooling equipment, his experience shows. You have to convince them that the equipment operates best on a 24 hour basis, he says. He has found that many customers keep the temperature set low when the equipment is first installed, but later find it is just as satisfactory when set as high as 78 or 80 F. The value of summer air conditioning in creating comfort is as much in the dehumidifying effect as it is in the actual cooling, he says. He has discovered that people are not as critical of temperature in cooling as they are in heating.

With the tremendous growth potential of the cooling market, this dealer believes any dealer who has held off entering this field should do so at once. "The dealer who tries to stick to heating alone will be out of luck in the future," he adds.



COOLING DEALERS' HANDBOOK

How to Solve Engineering
and Installation Problems
in Residential Cooling

Watch Out for Latent Heat

. . . in making cooling
load calculations, if there's any question about whether
moisture problems will be excessive in the home

By S. W. Reid

Air Conditioning Engineer
Gilbert Associates, Inc.

DETAILED SUGGESTIONS for calculating the sensible heat gain in a residence with reasonable accuracy are presented in Manual 11, published by the National Warm Air Heating and Air Conditioning Association. Little attention is afforded the latent heat (moisture) gain, although this

factor is recognized in the recommendation that in all cases latent heat gain be entered in the calculation as 30 percent of the sensible heat gain.

There are several reasons for the relatively little importance attached to the latent heat calculation. One is that it is difficult to estimate. It can

vary from one day to the next and from one hour to the next depending on activity in the laundry, kitchen and bathroom, on the number of people, on infiltration and other factors. Another reason is that experience has shown that the latent heat removing capacity of residential cooling equipment is usually adequate when the selection is made on the basis of sensible capacity alone.

TABLE 1 — INCREASING AIR VOLUME in 2 ton unit increases total and sensible capacities while latent capacity is decreased

Cfm	%	Total		Sensible		Latent	
		Btuh	%	Btuh	%	Btuh	%
720 . . 100 . . 23520 . . 100 . . 17100 . . 100 . . 6420 . . 100							
800 . . 111 . . 24000 . . 102 . . 18200 . . 106 . . 5800 . . 90							
880 . . 122 . . 24480 . . 104 . . 19300 . . 113 . . 5180 . . 81							

Moisture Is Inherent

The clue to our discussion this month is the word "usually" in the statement above. There are cases where the moisture load seems ex-

cessive, or conversely, where the latent heat removing capacity of the cooling equipment seems inadequate.

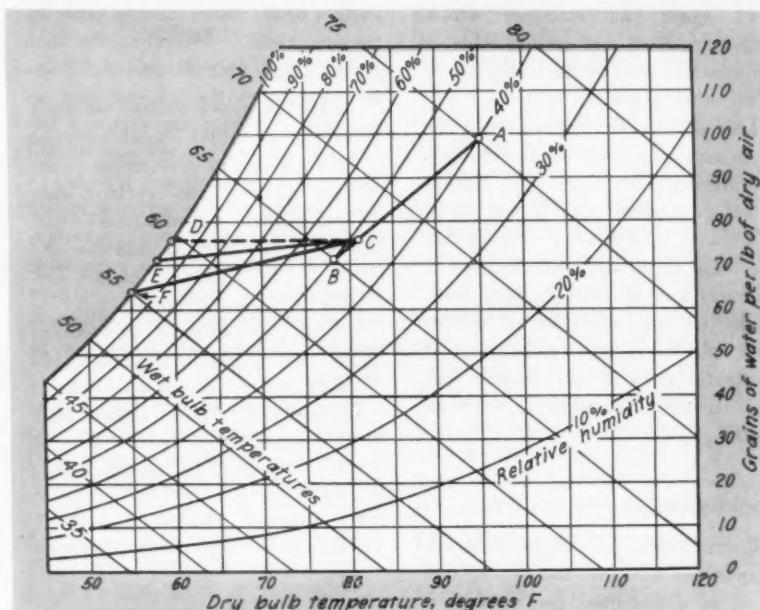
The moisture problem in a home is partly created during construction. A bare earth crawl space can be one of the greatest contributors of moisture. Water will be drawn into this space from surrounding earth by capillary action. For this reason, attempts to dry out an untreated crawl space will never succeed. The best solution is to cover the area with a vapor barrier such as heavy roofing material which is adequately lapped, or various plastic sheet materials.

Vapor Barrier Usually Needed

While concrete basement or crawl space floors are improvements over bare earth in areas with high ground water conditions, they are not vapor-tight and will permit considerable moisture migration when an attempt is made through air conditioning to reduce the vapor level inside a house. These potential moisture sources must be recognized and dealt with by installation of a vapor barrier between slab and ground when the house is built.

Moisture penetration of finished residential walls built to reasonable construction standards is frequently overlooked in making air conditioning installations because it is a relatively minor factor. (Modern builders recognize the importance of installing a vapor barrier in any wall built of materials which would be damaged in cool seasons by moisture or its freezing.) Unfinished block walls, however, offer very little protection against vapor penetration, or even against water. Proper sealing compounds must be applied to the outside of such construction which is below grade. Other types of sealing materials are available for treating exposed portions.

New homes usually contain a great deal of inherent moisture which may cause trouble the first year or so of air conditioning. Masonry materials, of course, are applied wet, and the drying process takes time. New lumber will usually give up considerable moisture before an equilibrium point



1 PSYCHROMETRIC CHART illustrates relationship of temperature, relative humidity and moisture content under given conditions

is reached. These conditions should not be overlooked as possible contributors to a problem of high humidity.

Occupancy Boosts Latent Load

From moisture sources attributable to construction, we turn to the various sources due to occupancy. The first is people. The human body constantly gives up water through the skin and through respiration. Cooling capacity consumed in condensing this moisture from the air ranges from 150 to 985 Btuh per person, depending on the degree of activity. A value of 250 Btuh would normally be used as an average, but during a social gathering such as a birthday party, the total latent cooling load is increased not only by the larger number of people, but also by the increased amount of heat generated by each individual.

The kitchen is a potential source of moisture. Moisture is created when food is cooked, when dishes are washed and when a gas stove is turned on. Many mechanical dishwashers use electric heat for rapid dish drying. This moisture enters the

air quickly. Whether or not any of these moisture (and heat) sources are considered in the kitchen cooling load calculation is a matter between the dealer and the owner. Some judgement will have to be applied in each case to determine the importance of these factors in the house total load and to the results desired in the kitchen. In any event, a properly applied kitchen exhaust fan should be coordinated with the air conditioning system to keep odors from being carried back to the conditioner and thence spread to all areas of the house.

Laundry, Bathroom Add Load

The laundry room is another source of moisture, particularly where unvented dryers are used. These dryers operate on the principle of heating air either with gas or electricity to lower its relative humidity. The hot air in passing through wet articles picks up moisture and carries it away — into the house, unless a vent pipe carries it outside.

If she does not have an automatic drier or an outdoor line, the housewife may hang wash on indoor lines.

Here again, all moisture which evaporates from wet articles adds to the moisture level in the home. There is no other place for it to go.

Like the laundry room, the bathroom may be a place where considerable drying takes place. It is difficult to assign a latent value to wet cloths and towels or articles of clothing that are hung up to dry. Nor is there a practical way to evaluate how much work the air conditioning system must do to remove moisture that originates from a wet shower stall and curtain. Nevertheless, they all contribute.

Cooling Coil Is Also Source

Continuing our search for moisture sources, we find that the cooling coil itself is a potential contributor to high humidity under certain circumstances. When the compressor is running, the coil is cold. It is below the dew point of the entering air; therefore, moisture condenses on its surface. Air leaves the coil with less total moisture than it had when it entered.

When the room thermostat senses that the temperature has been reduced sufficiently, it will stop the compressor. Usually, the blower continues to operate, moving air through the coil. This relatively warm air evaporates water from the coil surface and therefore leaves the coil with more total moisture than it had when it entered. Moisture buildup from this source continues until the coil surface is dry or until the compressor restarts.

With a properly sized cooling unit, the condition described above does not create a serious problem since the compressor will be operating most of the time under moderate to heavy load conditions. When the unit is much larger than necessary, however, the compressor will have many "off" periods even under maximum load. The result is a higher-than-normal moisture level.

Outdoor Air Brings Moisture

Moisture brought into a home with outdoor air can constitute a sizable

portion of the latent cooling load. In modern, tight construction, the best practice is to duct all needed outside air directly to the cooling unit so moisture and heat are removed before the air reaches the conditioned space. This arrangement permits close control of the amount of air that enters. In a well weatherstripped house and with reasonable introduction of outside air (perhaps one air change an hour) infiltration around windows and doors can be assumed negligible.

Since we are looking for unusual sources of moisture, consider the leaky house in which a great deal of outside air infiltrates through cracks around windows and doors. Unless this factor is either considered

in the cooling load calculation or corrected by weatherstripping, it will not be possible to maintain desired comfort conditions.

Infiltration of outside air is not confined to windows and doors. Occasionally it takes place in a duct system. The writer saw one job in a very humid climate where because of insufficient headroom a self contained unit was installed with the blower section mounted beside the coil and condensing unit section instead of on top. Because of a poor duct connection between the two components, the fan was pulling a great deal of outside air into the system, bypassing the cooling coil. The leak in the duct was not evident until a thorough inspection was made following a complaint from the owner not only about high humidity, but also about high temperature.

Cfm Affects Latent Capacity

The amount of air passing through its cooling coil has more effect on the latent capacity of a cooling unit than it has upon either sensible or total capacity. For example, examine Table 1 which represents catalog information on an actual 2 ton unit. Notice that an increase in cfm of about 22 percent affects total capacity about 4 percent; however sensible capacity increases about 13 percent and latent capacity decreases about 19 percent. While total and sensible capacity vary directly with air flow, latent capacity varies inversely. Since latent capacity is least when air flow is greatest, excessive air may be the cause of what appears to be a high humidity condition.

The psychrometric chart, as shown in Fig. 1, is a very useful tool. Every dealer should be familiar with it, not only as an aid in the office, but also for helping customers understand solutions to problems. Let's look at it with particular reference to the problem of high humidity we have been discussing.

Point A represents a condition of outside air which is used in certain sections of the country. Notice that the dry bulb temperature is 95 F, the wet bulb is 75 F and that a pound

THIS CONTINUING SERIES OF ARTICLES COVERS . . .

... all aspects of residential cooling, beginning in the August, 1952 Artisan with a complete rundown on:

FUNDAMENTALS . . .

... in a series of 20 articles which described the basic operating conditions of residential cooling equipment. Next, we turned to:

SPECIFIC PROBLEMS . . .

... of maintenance, service, installation and management, describing new techniques and presenting pointers on solving problems common to residential cooling. The current series describes:

CASE HISTORIES . . .

... and known problems which have actually been experienced and reported by dealers. Engineering, installing and servicing of cooling systems and their components are discussed by the author in answer to actual problems expressed by industry members.

of this air contains 99 grains (a grain is 1/7000 lb) of water. Notice also that the relative humidity at *A* is 40 percent.

RH Alone Often Meaningless

Point *B* represents conditions in a room. Here the dry bulb temperature is 78 F, there are 71 grains of water per lb of air, and the relative humidity is 50 percent (10 percent higher than at the uncomfortable outside condition *A*). This comparison shows that a value of relative humidity is meaningless unless it is related to a particular dry bulb temperature. A pound of air at *A* contains much more water than a pound at *B*, and yet the relative humidity at *A* is less than that at *B*.

If we were to take a quantity of air at condition *A* and mix it with other air at condition *B*, we should find the mixture condition of temperature and grains of water could always be represented by some point *C* on the line between *A* and *B*. Point *C* could represent the condition of air entering a cooling coil. If the coil were to remove heat until the air temperature was reduced to 59.5 F, the process would be represented by line *CD* in Fig. 1. Note that cooling alone is done without removing any moisture from the air. At point *C* the water content is 76 grains per pound and at *D* it remains the same.

Relative Humidity Changes

Even though there is no change in moisture content from *C* to *D*, there is a change in relative humidity from 49 to 100 percent. The temperature at *D* is known as the dew point temperature for air at any set of conditions on line *CD*, for such air can be cooled no lower than this temperature without causing a reduction in the moisture it holds. Notice, for instance, that if the temperature were reduced to 58 F the moisture content would drop from 76 to 71 grains per pound as represented by point *E*. Correspondingly, a reduction to 55 F would reduce the moisture to 64 grains as shown by point *F*.

Line *CD* in Fig. 1 represents sen-

What Is 'Air Conditioning'?

True air conditioning provides comfort in all seasons of the year, according to the American Society of Heating and Air-Conditioning Engineers. The ASHAE defines air conditioning as follows:

"Air conditioning is the process of treating air so as to control simultaneously its temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space."

sible cooling (temperature reduction) only. Lines *CE* and *CF* represent a combination of both sensible and latent (moisture removal) cooling. Air cooled from *C* toward *E* will have less moisture removed per pound than will air cooled from *C* toward *F*. If *E* and *F* are considered

to represent average cooling coil surface temperatures, then we can say that, other things being equal, a reduction in the surface temperature of a coil will increase the amount of latent heat it can remove.

The slopes of lines *CD*, *CE* and *CF* represent different ratios of sensible to latent heat removal. The ideal situation is to have the cooling coil remove heat in the exact proportion of sensible to latent that it is generated. This can be done when the load estimate is accurately made and when the dealer selects a coil and condensing unit with the necessary characteristics to match it. It is only a matter of chance, however, when the load is matched with a self-contained unit with factory selected components for average conditions. Nevertheless, so long as the self-contained sensible and latent capacities are respectively equal to or greater than the sensible and latent loads as they actually exist, that application will usually be satisfactory.

Proposal-Contract Form Spells Out Terms of Sale

A WELL-PREPARED proposal form is one of the heating-cooling dealer's most valuable assets, says Armstrong News & Notes. It protects him from bad credit risks, misunderstandings and customer dissatisfaction. It also cements customer relations by assuring the buyer that he is getting quality equipment and will not be billed for extra charges.

First of all, it is a statement of exactly what is to be supplied and at what price. Secondly, when signed by the home owner, it becomes a binding contract.

To do the job thoroughly, the company believes, the form should consist of the actual proposal in triplicate, and a fourth page in two sections: 1) credit section, which should be filled out completely when the order is taken so it can be processed quickly for validity of credit standing, and 2) a notice of completion which also should be filled out completely by both dealer and customer upon final completion of the job.

A complete proposal, with its two carbons, should contain four sec-

tions: 1) space for the name of the dealer and his company address, the buyer and his address, and the location of the equipment installation; 2) an equipment and labor section which lists major equipment (with model numbers), accessory equipment, an understanding as to ownership of the old equipment, and all other items that are to be included for the price (items not to be included should be specified also); 3) the spelled-out proposal which shows the prospect what it will cost him and how payments are to be made along with the cash price; 4) an acceptance section which should be filled out completely to show when and where payments are to be made regardless of whether the sale is for cash or is to be financed. In this fourth section should be a place for both buyer and dealer to sign, having gone over the form carefully and agreed on its terms.

When the proposal is signed, the customer is given the third sheet for his records.

'Seller-Owner-User' Dealers

Make First-Hand Experience Pay

**Dealer reports prove that Artisan's
idea of promoting ownership of central air conditioning
in their homes is applicable to
all phases of their sales promotion activities**

REPORTS FROM dealers who requested copies of the Air Conditioning Seller—Owner—User certificate offered in June American Artisan indicate that this document is being displayed in showrooms and windows so that the public will know that the dealer "speaks from first-hand experience" about summer air conditioning. One of these dealers, W. G. Carpenter, Aliquippa, Pa., says, "I believe that having air conditioning in your own home gives you a different perspective when selling a customer. I make it a point to show prospects my own unit in operation. I recommend that all dealers install summer air conditioning in their homes as well as in their places of business."

Certificate Displayed Prominently

The Seller—Owner—User certificate hangs on the wall of Mr. Carpenter's showroom and attests to his belief in summer air conditioning systems. There are a number of other ways in which a dealer can bring to the public's attention that he knows what he is talking about when he recommends cooling systems for their summer comfort.

Possession of a Seller—Owner—User certificate can be announced to the public through a news release to local newspapers at the time the certificate is received. (American Artisan will send a sample release upon request.)

During the summer, newspaper advertisements can be built around the authority of a dealer's recommendations of equipment and application. Radio and television spot announcements can include the statement that a cer-

tificate has been awarded by a nationally-known trade publication.

Award Is New Idea for Direct Mail

The direct mail approach to a prospect usually results in a higher percent of inquiries—if the approach is new and different. The use of the award certificate is an effective approach because it indicates that the dealer can prove, with first-hand experience, that he knows the answers to the questions a prospect might ask.

Manufacturers, too, recognize the advantage the dealer with a Seller—Owner—User certificate has in his sales story. Some manufacturers already have recommended that dealers with summer air conditioning equipment installed in their homes and/or places of business send to American Artisan for their certificates.

Association Backs Idea

Favorable recognition by a national industry association has been given this idea on two occasions. The introduction of the Seller—Owner—User approach was made in February American Artisan. The editorial covering the recommendations was published verbatim by Air-Conditioning and Refrigeration Institute in their March bulletin, and the June announcement of the certificate, including the photograph, has been reproduced in the August ARI bulletin. It appears that merchandising specialists throughout the industry recognize the acceptance of prospects when they deal with people who answer their questions from first-hand experience.



MAIL
THIS
COUPON
TODAY
!

To: The Editors
American Artisan
6 N. Michigan Ave.
Chicago 2, Ill.

Please send me free, inscribed with my name and my company name, an "Air Conditioning Seller—Owner—User Certificate" suitable for framing or for display.

I have central summer air conditioning in my home, installed _____ (month and year). Its capacity is _____ hp.

I have summer air conditioning in my place of business, installed _____ (month and year). Its capacity is _____ hp.

(Please print)

Name: _____

Company: _____

Street Address: _____

City and State: _____

Signed: _____

ARE YOU ELIGIBLE?

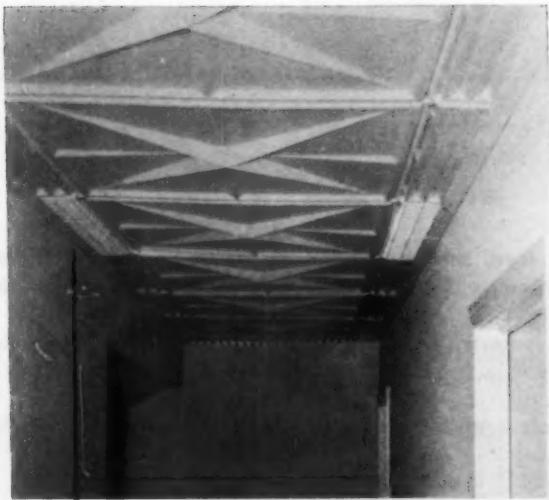
You are invited to apply for an American Artisan "Air Conditioning Seller—Owner—User Certificate" if you have central summer air conditioning in your home and/or place of business.

Typical structural complexities of multi-level homes, multiplied by cathedral type and dropped plastic ceilings, limited attic space and large glass areas, were overcome one by one in an interesting modernization job



TANGLE OF DUCT WORK, caused by limited space available presented a problem for Joseph C. Myers, Jr., (right) and his mechanic, who is in process of covering the ducts with first layer of insulation

Dealer Finds Some Answers to



RETURN AIR GRILLE was located above this translucent plastic ceiling in the hallway to the bedroom area. Note air inlet grilles near walls in false ceiling

WHEN THE OWNER of a new home decides to add cooling after the frame of the building has been erected and a wet heat system has already been installed, he hands the air conditioning dealer one of his most difficult problems. Such an assignment was presented to Joseph C. Myers, Jr., J. C. Myers Heating Co., Williamsport, Pa., by the owner of a new \$75,000 tri-level house. Additional limitations were imposed by location of the equipment and the fact that it had to be air cooled. The condensing unit could not be located remotely as original landscaping could not conceal the outdoor equipment. To limit normal engineering techniques further, there was no suitable indoor location for the condensing unit, cooling coil, blower assembly and duct work.

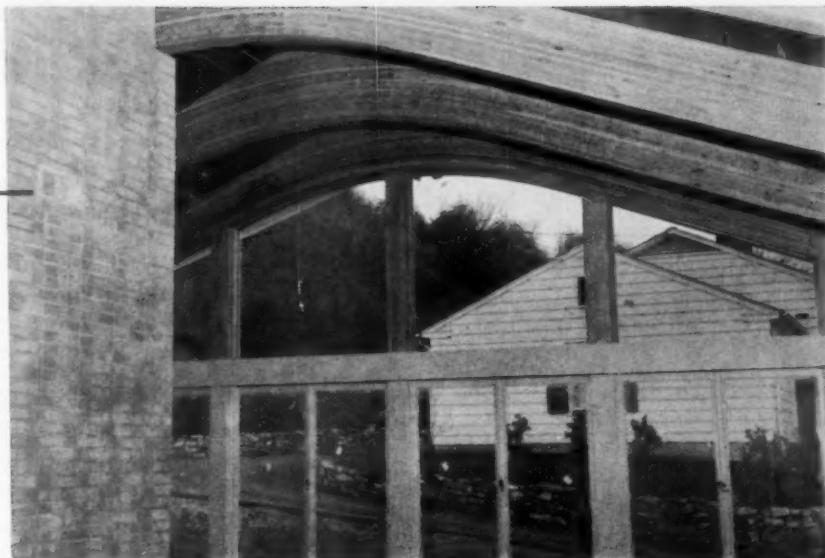
The structural complications of the multi-level house were multiplied by a cathedral type ceiling in an ell shaped living room-dining area which has a 10 ft glass wall panel on one side and 6 ft glass walls on two other sides.

Two Air Cooled, Packaged Units Selected

Two self-contained packaged summer air conditioning units with air cooled condensers were selected. Each unit has a rating of 34,000 Btuh. These units were installed in a space above the kitchen, adjacent to the living room-dining area. The maximum distance above the kitchen ceiling to the peak of the room is 4 ft. The two units are installed horizontally in this space, supported by steel rods connected to beams fastened to the 2 X 8 in. rafters.

The installers elected to use the rafters to support the

HIGH VELOCITY discharge registers were used to direct air streams toward the glass wall of the cathedral type living room



Cooling a Wet Heat Home

conditioning equipment rather than to have it rest on the joists. This decision has proven wise because operating noise is barely audible in the living zones.

Outdoor Air Drawn from Under Eaves

Air for the condensers (1340 cfm each) is drawn from the attic space and discharged to the outside through grilles located in the eaves. Attic air is obtained through grilles located in the eaves on the north side of the building. Free area of the grilles supplying the attic air is 3 sq ft. The free area of the discharge air grille is 4 sq ft. Intake grilles are more than 6 ft from any point where the condenser air is exhausted, to prevent picking up discharged condenser air and passing it through the attic space, back to the condenser.

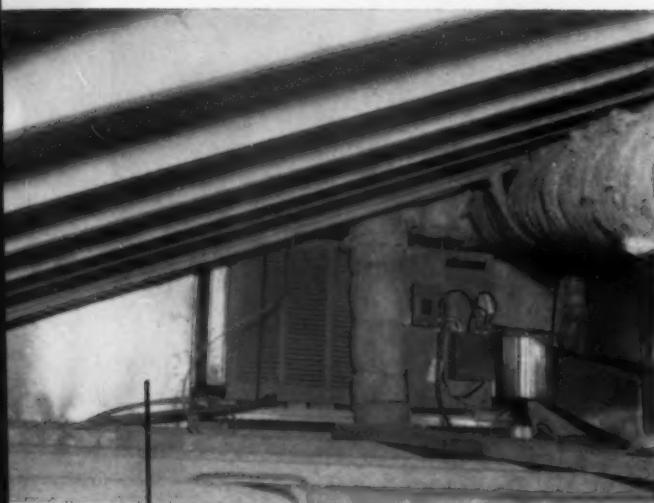
The air cooled condenser opening at the unit is square, but due to the slope of the roof to the eaves and the home owner's refusal to build dormers, the discharge duct had to be a 26 X 22 in. to 32 X 18 in. transition elbow.

Ceiling Supplies, Returns Most Practical

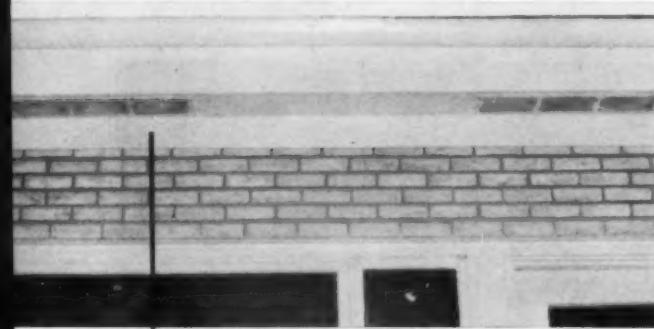
The location of the conditioning unit in the attic made ceiling supply and return grilles most suitable for air distribution. Installation of duct work for the portion of the house containing the bedrooms was further complicated by an 18 in. space between roof peak and the roof edge. Round 6 in. leaders were run from the rectangular supply air trunk to each ceiling diffuser boot. Each duct was covered with 2 in. glass fiber insulation. All supply air trunk lines are short, due to the limited space avail-



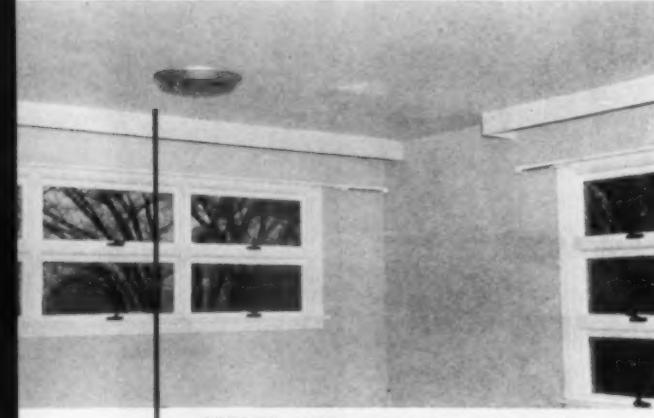
RECEPTION HALL has rectangular register to direct conditioned air over glass wall and door



LOCATING PACKAGE type air cooled condensing unit in attic with minimum ceiling height was answer to one of customer's requirements that no remote equipment be used. Note the tapered condenser discharge air duct at left. Insulated joist space was used to deliver air to under-eave outlets



INTAKE GRILLES provide air to attic space from which air cooled condensers obtain their volume. Attic intake grilles are not located near condenser discharge air streams



CORNER EXPOSURE of outside walls is blanketed by strategically located diffuser. A second diffuser was used to blanket areas not reached by diffuser shown here

able. Because two conditioning units are used the ducts fill most of the space in the small attic above the kitchen, breakfast room and reception hall.

Joist Spaces Panned for Returns

Return air ducts were made by panning joist spaces wherever possible, to conserve working space for branch and main supply trunk lines. Where panned joist space is used as a return duct, the metal panning strip is covered with 2 in. insulation.

Naturally, the ceiling diffusers discharge supply air downward. In rooms such as the bedrooms which have four way exposure (ceiling, floor and two outside walls) diffusers were located to provide a blanket of air over the exposed walls and glass area. Where a single diffuser could not blanket the entire exposed area, a second diffuser was added to provide conditioned air.

High Wall Registers Deliver High Velocity Air

In the reception hall and other locations where large sections of glass form the wall and door, rectangular diffusers blanket the concentrated exposure. In another location — the living-dining area where the cathedral ceiling and almost solid glass walls present a different air pattern problem — the registers are located in the brick partition just above the ceiling line of the kitchen, which is on the other side of the wall. A high discharge air velocity is necessary to deliver the conditioned air to the outside wall. The height of the registers made it possible to discharge the air at a high velocity without creating drafts in the living zone.

Translucent Ceiling Poses Return Problems

Return air grilles were installed on the inside wall of the recreation hall and in the hallway to the bedroom area. The hallway to the bedrooms contains a special ceiling lighting arrangement. The ceiling is actually a translucent plastic material dropped 12 in. below the plaster ceiling. The lighting for this 30 ft hall is adjustable for several hues and intensities, all manually adjusted by a control at one end of the hall. The fluorescent lamps light the entire ceiling. Because a return air opening was required in this area, it was necessary to install plastic inlet grilles in the translucent ceiling. These grilles had to provide free areas greater than that of the return air grille because of the lightness of the plastic ceiling. Had less than the required free area been provided, the intake of air would have distorted the decorative ceiling.

A copper tube, $5/8$ in. o.d., has been connected to each unit's drain pan and slanted downward from the unit to the point where it leaves the attic under the overhanging eaves. The tubing terminates in a nearby downspout.

The job, with all its complications, was completed satisfactorily by the firm's engineers and mechanics and goes into the books as no more than a routine job.

HUGH REID'S SHEET METAL PATTERN

How to Make a 90 Deg Stack Boot For Warm Air Duct Connections

. . . in answer to a reader's request
for the simplified method development of a connection
between a 12 x 3 $\frac{1}{4}$ in. wall stack and an
8 in. diameter branch duct

American Artisan
6 N. Michigan Ave.
Chicago, 2, Ill.

Gentlemen:

Would you please have Mr. Hugh Reid show the development of a sheet metal pattern for a 90 degree rectangular to round angle stack boot with seams in the center of the front and back?

If Mr. Reid would prepare the solution to this problem in the form of a half pattern of the boot it would be most helpful to us in solving a problem we have encountered.

Yours truly,

K.R.Z.
Columbia, Mo.

READER'S REQUEST for heating system duct fitting is answered in this month's pattern problem by Hugh Reid

THE PROBLEM for this month was submitted by an American Artisan Reader who requests that the pattern be laid out with center seams on the back and throat. In many shops the tendency is to eliminate seams wherever possible. Should a one-piece fitting be desired, the pattern can be "flopped" over about the line 0.7" in Fig. 5.

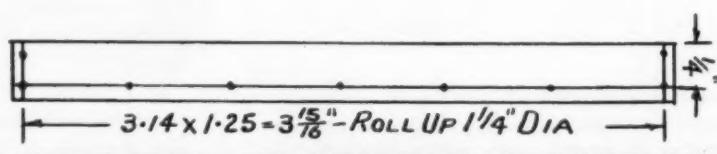
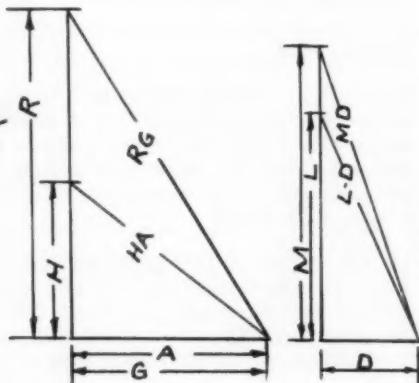
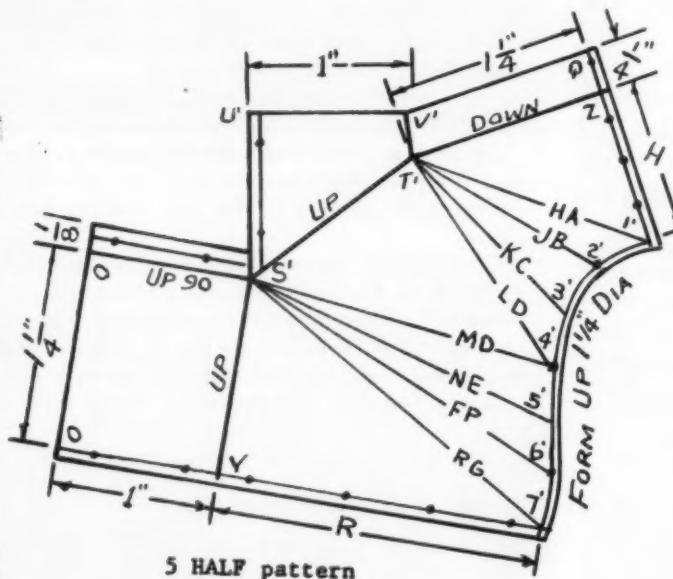
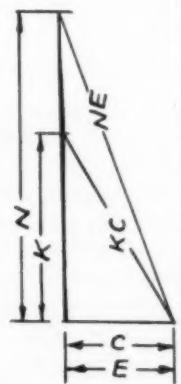
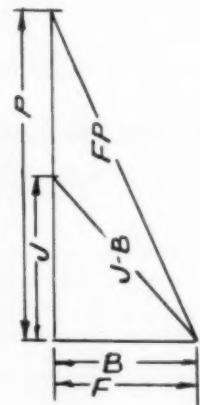
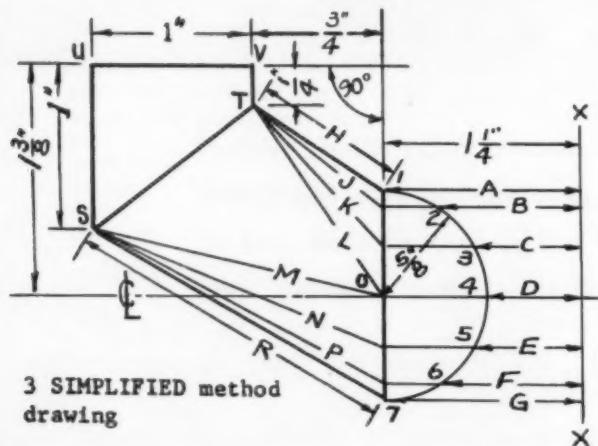
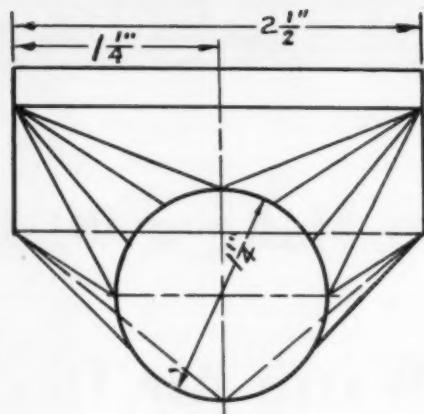
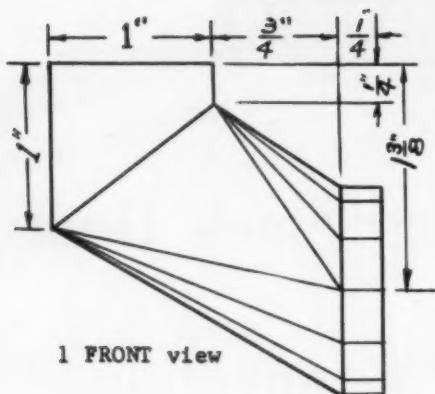
The problem title indicates that the angle boot is to be used as a connection between a 12 x 3 $\frac{1}{4}$ in. wall stack and an 8 in. diameter branch duct from the furnace plenum.

Given the front and end view of a rectangular to round 90 deg boot, the following is a step-by-step analysis of the pattern problem solution. Note: The end view is not required in the solution of the pattern problem by the simplified method; it is drawn for the purpose of giving necessary dimensions and showing the shape of the fitting.

Simplified Method Drawing, Fig. 3 —

a) Draw the 1 in. horizontal line UV. From both points draw lines downward at 90 deg to line UV. From U measure down 1 in. and mark the point S. From point V measure down $\frac{1}{4}$ in. and mark the point T. Draw the line ST.

b) From line UV measure down $1\frac{3}{8}$ in. and draw the horizontal center line CL. From point V measure to the right the given $\frac{3}{4}$ in. and draw a line parallel to line VT.



Mark the intersection point of the horizontal center line and the perpendicular line with the letter O.

c) With O as center and given radius $5\frac{5}{8}$ in., draw a half circle to the right and intersecting the vertical line bisecting point O. Mark these intersecting points 1 and 7. Divide the half circle into 6 equal spaces and number the points 2, 3, 4, 5 and 6.

d) Working from Fig. 2, transfer the half width of the rectangle, which is $1\frac{1}{4}$ in., to the right of line 1-7 (Fig. 3) and draw a line parallel to diameter line 1-7. Mark the line XX.

e) Through the equally spaced points on the $5\frac{1}{16}$ in. radius half circle draw lines perpendicular to and intersecting the diameter line 1-7 and line XX. Mark the distances from line XX to the equally spaced points on the half circle with the letters A, B, C, D, E, F and G.

f) From point S draw work lines M, N, P and R as shown. From point T draw work lines H, J, K and L as shown.

To Lay Out the Half Pattern, Fig. 5 —

a) Draw the 1 in. horizontal line U'V'. From points U' and V' draw lines downward at 90 deg to line U'V'. From U' measure down 1 in. and mark the point S'. Measure down $\frac{1}{4}$ in. from point V' and mark the point T'. Draw the line S'T'.

b) Draw a right angle. From Fig. 3, transfer line M to the vertical leg. Transfer the distance D, from line XX to point 4 on the half circle, to the horizontal leg and mark the hypotenuse line MD. With point S' (Fig. 5) as center and radius MD, draw an arc to the right of point S'.

c) Transfer line L from Fig. 3 to the vertical leg of a right angle and the fall distance D to the horizontal leg. The hypotenuse line LD is the developed line. With point T' (Fig. 5) as center and radius LD, draw an arc to intersect arc MD and mark the point 4'.

d) Working from Fig. 3, transfer line N and fall distance E to the vertical and horizontal legs of a right angle. The hypotenuse line NE is the developed line. With point S' (Fig. 5) as center and radius NE, draw an arc below point 4'. With equal space 4-5 on the half circle (Fig. 3) as radius and point 4' (Fig. 5) as center cut arc NE and mark the point 5'.

e) Transfer line P and fall distance F from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line FP is the developed line. With point S' (Fig. 5) as center and radius FP, draw an arc below point 5'. With equal spacing 5-6 on the half circle (Fig. 3) as radius and point 5' (Fig. 5) as center, cut arc FP and mark the point 6'.

f) The line R and the fall distance G are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line RG is the developed line. With point S' (Fig. 5) as center and radius RG, draw an arc below point 6'. With equal space 6-7 on the half circle (Fig. 5) as radius and point 6' (Fig. 5) as center, cut arc RG and mark the point 7'.

g) With line R (Fig. 3) as radius and point 7' (Fig. 5) as center, draw an arc to the left of point 7'. With the $1\frac{1}{4}$ in. line G (Fig. 3) as radius and point S' (Fig. 5) as center, cut the arc R and mark the point Y. Draw line S'Y. From points S' and Y draw lines perpendicular to and to the left of line S'Y. Measure the given 1 in. length on each line and draw the line OO.

h) Transfer line K and fall distance C to the vertical and horizontal legs of a right angle. The hypotenuse line KC is the developed line. With point T' (Fig. 5) as center and radius KC, draw an arc above point 4'. With equal space 4-3 on the half circle (Fig. 3) as radius and point 4' (Fig. 5) as center, cut arc KC and mark the point 3'.

i) The line J and the fall distance B are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The line JB is the developed length. With point T' (Fig. 5) as center and radius JB, draw an arc above point 3'. With equal space 3-2 on the half circle (Fig. 3) as radius and point 3' (Fig. 5) as center, cut arc JB and mark the point 2'.

j) Line H and fall distance A are transferred from Fig. 3 to the vertical and horizontal legs of a right angle. The hypotenuse line HA is the developed line. With point T' (Fig. 5) as center and radius HA, draw an arc above point 2'. With equal space 2-1 (Fig. 3) as radius and point 2' (Fig. 5) as center, cut arc HA and mark the point 1'.

k) With line H (Fig. 3) as radius and point 1' (Fig. 5) as center, draw an arc to the right of point T'. With the $1\frac{1}{4}$ in. line A (Fig. 3) as radius and point T' (Fig. 5) as center, cut arc H and mark the point Z. From point Z, measure $\frac{1}{4}$ in. above line TZ and establish point Q. Draw lines ZQ and V'Q.

To Lay Out the Collar Pattern, Fig. 6 —

a) Calculate the collar circumference by multiplying the given $1\frac{1}{4}$ in. diameter by the constant 3.14. Thus, $1.25 \times 3.14 = 3\frac{15}{16}$ in.

b) Draw a rectangle equal to the $3\frac{15}{16}$ circumference by the given $\frac{1}{4}$ in. length.

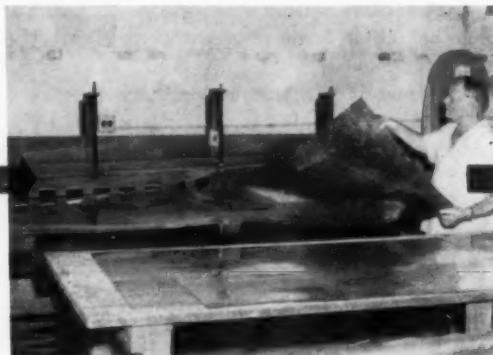
Add allowances for seams and joints, lay out the required rivet holes and mark the patterns for fabrication.

WATCH FOR THE SEPTEMBER ARTISAN
and the article describing how a Mid-
dletown, N.Y. dealer makes a spe-
cialty of replacing obsolete steam
heating systems with warm air

Lead-Coated Copper Flashing Job



PRIOR TO MAKING his estimate, Jack Brooks takes off the lead-coated copper flashing measurements



SHEETS ARE carefully trimmed and cut to size to avoid waste of the lead coated copper

Appearance of public library is enhanced and protected by lead-coated flashing for metal casement window sills, gravel stops and coping covers

THE ARCHITECT who designed the new public library in Lansing, Ill. wanted to use copper flashing for the metal casement window sills, gravel stops and coping covers. However, he did not feel that the distinctive color of sheet copper would harmonize well with the outside decoration scheme. Therefore, he specified lead coated 16 oz copper for this application. Twelve hundred pounds were used on this building. The sheet metal work



FINISHED COPING COVER extends through wall to prevent any possible interior leakage from driving rain. Holes for brace bolts had to be located accurately to prevent buckling of the metal coping cover

was handled by Sun-Ray Heating and Sheet Metal Co., headed by Jack Brooks and Harry Sundeen.

Two-Piece Method Used

The two-piece method was employed for the window sill flashing. The 4 in. edge strip was fastened to the masonry wall with lead coated copper nails after being adjusted to a chalk line denoting its position on the wall in relation to the top of the sill. Large, round-headed nails were placed every 8 in., in two rows. The top nails were driven 1 in. below the top of the edge strip and the bottom row was located 1 in. above the brake line for the $\frac{3}{4}$ in. lip used in locking the top flashing section.

Maximum length of each top flashing section is limited to 8 ft to make adequate allowance for expansion and contraction. This section was designed to use a $\frac{3}{4}$ in. slip joint over the lip of the edge strip. The joint slants downward 45 deg from the vertical side. Four and one-half in. above the slip joint, the vertical side was braked at a 90 deg angle to permit the 17 in. cap to cover the masonry.

All top joints were formed flat and soldered. Where the window sill ends, the flashing was turned up for a distance of 2 in. to give protection at the corner. Fifty-fifty solder was used throughout.

Fascia Gravel Stops Installed

Structures with flat roofs require fascia gravel stops. Those used here were fabricated from 16 oz cold rolled lead covered copper sheets, the same as the flashing for the window sills. Fascia gravel stops do not exceed the maximum recommended 8 ft length. Each section end was lapped 4 in.

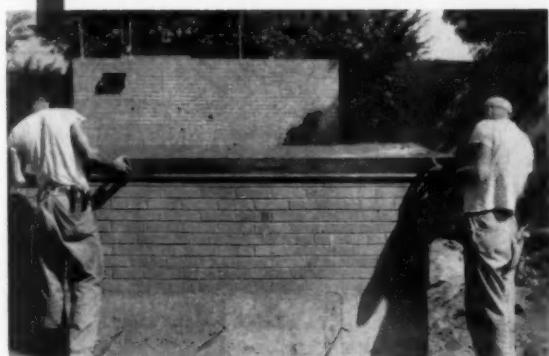
Solves Exterior Decorating Problem



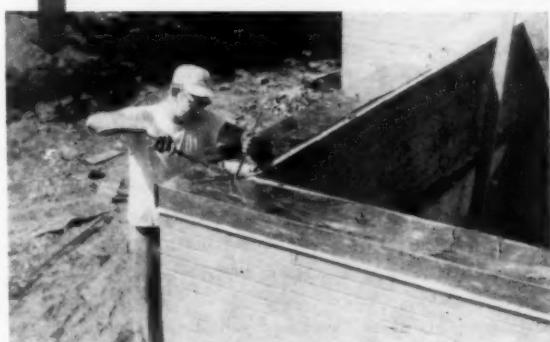
FLASHING LENGTHS ARE held to a maximum of 8 ft. Jack Brooks and Tom Safran carefully set hand brake at the specified dimensions



EDGE STRIP IS NAILED to masonry with lead-coated copper nails by journeymen Gaylord Rush (left) and Walter McGraw



TOP FLASHING SECTION is fitted into slip joint to complete a weather tight connection



FLASHING SECTIONS ARE SOLDERED at overlapped joints to form one complete section from wall to wall

Special Cleats Hold Coping Edge

The rear edge of the coping is held in place by 4 in. wide special cleats 3 ft apart. The cleats were fastened to the masonry with two nails. Then the coping was placed over the nailed portion of the cleat, and finally the coping was slit for a distance of $\frac{3}{4}$ in. and bent back to form a 2 in. tab. The cleat was then hooked over the tab and malletted into a tight fit.

Skill and care resulted in pleasing effect at points where flashing, coping and fascia show.

Here is good advice for any dealer who wants to keep on top of his financial problems, maintain his working capital and improve his profits. He should rely less upon his supplier and . . .



Put the Banker On the Team

By R. F. Coonley

**Assistant Treasurer
Lennox Industries, Inc.**

A SUCCESSFUL businessman must learn early how to borrow money and use credit wisely. He must plan ahead so that working capital is available when he needs it. This, of course, is a perennial problem. The difficulty of obtaining sufficient funds through borrowing is intensified during the present period when money is tight.

A dealer can turn to several sources for financial help. He can and frequently does rely upon his supplier for credit. And he may also turn to his local banker for funds.

To what extent should a dealer rely upon his supplier for financial help? Ideally, you might say that he shouldn't need to depend upon his supplier at all. But being realistic, we know that such financial help from the supplier to the dealer has always been used and within reason it is right and proper.

Supplier Forced to Draw Line

As a matter of fact, suppliers usually welcome such indebtedness because it keeps the dealer in a closer relationship. There comes a point, however, especially in times of tight money, where the supplier is forced to draw the line. When this happens the dealer who is a poor manager finds himself in financial difficulty because the only source of help that he has developed has been the supplier.

The dealer, whether he deals directly with a manufacturer or through a wholesaler, usually reasons that this supplier is a large company with a lot of money, and therefore it should be able to carry his account for \$4000 or \$5000. His reasoning is correct, as far as it goes. He forgets, however, that in addition to himself there may be many other dealers who are thinking the same thing.

To use a hypothetical illustration, if 1000 dealers all over the country feel that XYZ Manufacturing Co. can well afford to carry them for \$4000 past due, it means

that the company ends up carrying a total of \$4,000,000 on its books. It means that this large sum of money is not available to pay wages, buy raw materials, pay the light and phone bill, etc.

Although the XYZ company probably finds that it can carry a portion of these accounts with its own funds, it usually will need to borrow money to carry the remainder. However, in a time of tight money, the company may find it difficult to borrow except at a high rate of interest. And so there comes a time when XYZ company must say in effect, "We can't afford to borrow any more money." When they reach this point, they must of necessity limit the amount of past due dealer accounts which they can carry, whether they like to or not.

Not Enough to Depend on Supplier

This illustration is perhaps oversimplified, but in general it applies in a relative way to all — from the small wholesaler to the industrial giants. This explains why it is not enough for dealer to depend solely upon his supplier for help when he is in financial trouble.

There is an old saying that "God helps those who help themselves." Most suppliers are glad to help the small businessman who tries to help himself. This year in particular the good manager will at least try to help himself to some extent.

The logical place for a dealer to turn for financial help is the local banker. Perhaps I should point out that I am not on the payroll of any bank nor do I own stock in one, but I do believe a dealer should cultivate the acquaintance, advice, and assistance of his local banking institutions. And yet, I am constantly amazed at the negative attitude which many dealers have toward banks and bankers.

Banker Is Well Qualified to Help

I admit that there may be some instances in small localities where conflicting personalities or politics of one sort or another preclude placing confidence in the local

Conditions This Year Make Good Management a Must

THROUGH MOST of this year there has been considerable uncertainty in the air. Money has been tight. Housing starts are off rather sharply. Collections in many cases have been difficult and credit scarcer. The stock market has had some jumpy moments.

At the same time the cost of living has been creeping higher. The upward spiral of wage and price boosts has picked up again. In addition, competition has been very intense, and it appears to be stiffening more every day.

Naturally, we all hope these conditions will be alleviated before year end, and some economists have been predicting an easing of these conditions in the second half of the year. However, often when I read the predictions and prophesies of these learned men, who spend a lifetime studying eco-

nomic conditions, I think of the United States Supreme Court where nine men, supposedly the best brains in their profession, so often disagree. If, after all the evidence is in, five of the Justices think one way and four think the opposite way, it makes me wonder whether there is any one correct answer to a legal or constitutional problem. I have the same feeling of uncertainty when I read conflicting predictions about our economic welfare.

Of one thing I am certain, however; the small businessman, whether he be in our industry or some other, will be squeezed harder than ever this year. Even if his volume of business goes up, it is very likely and extremely probable that his profit margin will come down. Conditions this year will place a premium on good management, more so perhaps than for several years past.

banker. However, these cases are rare. In most instances, a dealer will find the banker in his community is not only anxious but well qualified to help. After all, it is his business to give financial advice and to loan money. Money is his commodity and unless he can move it, turn it over, he makes no profit.

The dealer must realize that before a banker is going to be willing to loan him money, he will want to know something about him and about his business. Therefore, if I were a small dealer, I would make it a point to cultivate the friendship of a loaning officer in the local bank. Whether I needed money at the moment or not, I would keep him up to date on my business with periodical balance sheets and operating statements. I would discuss these figures with him and ask for his suggestions and advice. I would not hesitate to acquaint him with my products and services nor would I hesitate to suggest that he keep my name in mind as he hears of potential business. I would invite him to my place of business to see for himself what kind of customer his bank has.

It is a mistake to think that because a business is small the banker will not be interested in it. A banker would far prefer to have as a customer a well-managed, small firm with its balance sheet in good proportion and operating profitably, than a much larger firm heavily in debt and operating in the red. Once a dealer has established a good relationship, he will be in a position to turn first to his bank for financial assistance. He will have put the banker on his team.

There are many ways that bank credit can be used to improve the operations of a business. For example, the interest charge on a \$1000 loan at 6 percent for 30 days is approximately \$5. If a dealer were to borrow \$1000 to enable discounting an invoice, he might be able to

save \$10 or \$20 and sometimes more. It certainly is good business to spend \$5 to make \$10 or \$20, and yet it is surprising how many dealers never consider such a transaction. In addition to cash discounts for prompt payment, a dealer will often have an opportunity to save through special discounts offered on certain types of equipment under certain conditions.

Suggest Assignment of Sales

So far I have been talking about a straight unsecured loan for working capital purposes. However, often a dealer's financial condition is not quite to the point where his banker feels he wants to make an unsecured loan. In such a case, the dealer might suggest to the banker that he accept the assignment of some of his sales as added security for his note. I am referring to sales on a cash basis where payment is due upon completion or perhaps 30 days after completion. It goes without saying that most dealers would not make such a sale to a customer without first checking his credit rating.

The assignment of such a sale or contract gives the banker the advantage of two names to rely upon, the dealer's and the customer's. Often the banker is more than glad to loan on this basis and the customer will more readily and more quickly pay the bank than the dealer for obvious reasons. This procedure is particularly useful on a larger job where there is a heavier outlay of money for labor, materials, etc.

Another way for a dealer to take advantage of an attractive purchase is by asking the bank for a warehouse loan. Under this type of agreement, the bank pays from 80 to 90 percent of the invoice for a purchase and the dealer pays the balance. Such loans are not too difficult to obtain if a dealer can assure the bank that he has the

ability to move the merchandise within a reasonable length of time. If the savings gained on such special purchases are more than the interest charges, it is good business to finance in this manner.

For the larger dealer whose volume is greater many banks and finance companies will consider a request to "floor plan" merchandise. This type of financing is frequently used in the automobile and appliance fields. It is a method whereby the bank or financial institution takes back trust receipts and holds title to merchandise until it is sold. Such financing offers the larger dealer the advantage of a well-rounded and complete inventory purchased at the most opportune time, frequently with attractive discounts because of the quantity involved. Any banker will be glad to explain this procedure and the charges involved.

Other Sources Can Be Used

There are other sources of working funds which many dealers fail to consider. If a dealer holds life insurance, which has accumulated a large cash surrender value, he can borrow on it either from the insurance company or from a bank by pledging this cash value as security. Usually loans made on this basis are at a lower interest rate because of the excellent collateral securing them.

Find Heating Takes 5 Percent of Building Dollar

HEATING equipment and installation was found to account for 5 percent of the home building dollar in the Chicago area, according to a survey made by the Chicago Federal Savings and Loan Assn. Prior to World War II, heating commonly took 10 percent of the home construction dollar. The survey was based upon recently constructed one story brick homes financed by Chicago Federal.

The survey figures reveal how 14 trades and the contractor share the home building dollar. Carpentry, lumber and millwork alone account for 30 percent of every dollar of cost, the largest portion. Masonry ranks second with 12 percent of the cost and concrete work third with 11 percent. These three items thus add up to more than half of each construction dollar.

Two other trades also claim a higher percentage of the building dollar than heating, according to the survey. They are plumbing and sewerage with 8 percent and plastering with 6 percent. Sheet metal work takes 1 percent of the total.

The proportionate cost of each type of work was found to be about the same, whether the new home costs \$15,000 or \$30,000. The survey report noted that numerous factors may affect the various costs. If special materials are used, some costs may be increased. When the general contractor is also the masonry or carpentry contractor, charges for overhead and supervision are sometimes billed with the carpentry or masonry work, making

In the event that a business seriously needs money, this is a source of funds to be considered.

Obviously, there are instances when it is necessary to mortgage real estate or fixed assets. Funds can be obtained in this fashion in cases of absolute necessity. Loans are also available from banks when secured by collateral such as stocks and bonds, a point often overlooked by businessmen with such assets.

To sum up what I have been trying to say, a dealer should consider his local bank or finance company as his primary source of working capital. Naturally, there is no reason why he can not from time to time rely upon his supplier for some help. But by relying upon the local banker for aid in most instances, a dealer will be able to solve his money problems in a manner more agreeable for all concerned.

The local banker should be willing and pleased to discuss one or all of these financial suggestions in an effort to find the best way to solve a dealer's problems. The dealer should understand that if he does not have enough confidence in himself or in his business to be willing to take part of the risk by pledging assets, then he should not criticize the banker for not wanting to assume all of the risk. And he should not criticize his supplier for not wanting to take on the duties of a bank without recompense.

these costs seem out of line in comparison with those listed in the survey.

A minimum figure of 10 percent is shown in the report for the contractor's profit, but the profit margin was found to vary greatly with price bracket, quality and type of house.

To figure total costs, the price of the lot must be added. In the Chicago area, the survey found, 40 to 75 foot lots cost from \$1500 to \$7500 and sometimes more.

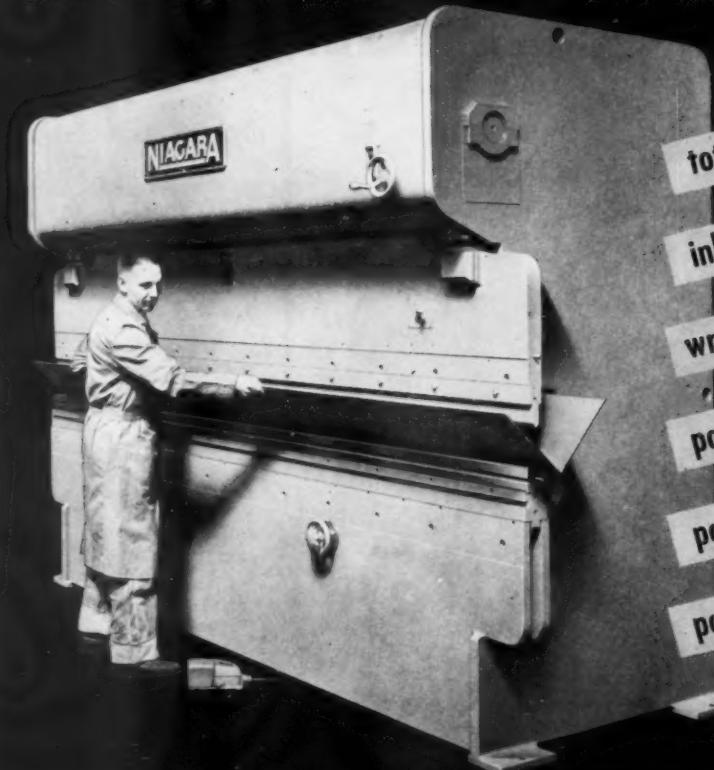
Since the survey was made there have been slight increases in various costs. Steel and cement have gone up, and tradesmen have been given wage increases.

TABLE 1 — SURVEY SHOWS average construction costs for a one story, 2 to 3 bedroom brick home of average quality with basement in the Chicago area

Kind of Work	Share of Average Cost-Dollar	Share of Total \$17,500 Cost
Carpentry, Lumber, Millwork	\$.30	5,250.00
Masonry	.12	2,100.00
Concrete Work	.11	1,925.00
Contractor's Profit (minimum)	.10	1,750.00
Plumbing & Sewerage	.08	1,400.00
Plastering	.06	1,050.00
Heating	.05	875.00
Electrical Work & Fixtures	.035	612.50
Painting & Decorating	.035	612.50
Excavating & Grading	.015	262.50
Glazing	.015	262.50
Tile (1 bath)	.015	262.50
Roofing	.015	262.50
Sheet Metal	.01	175.00
Steel	.01	175.00
Other Expenses	.03	525.00
Total	\$1.00	\$17,500.00

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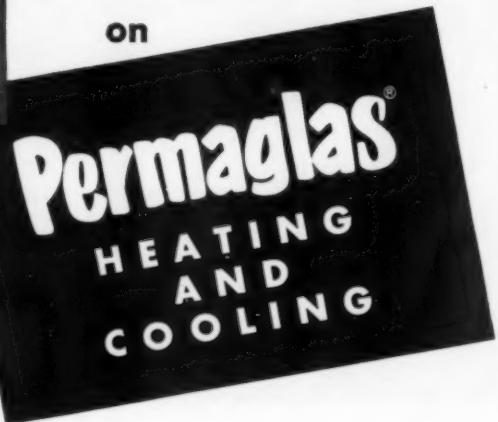
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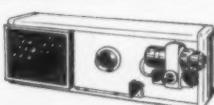
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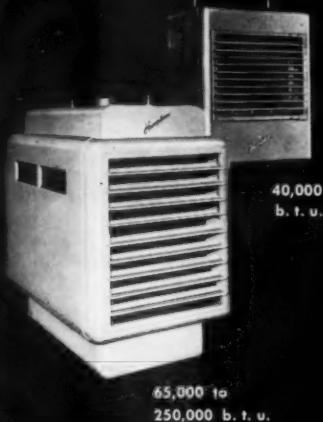
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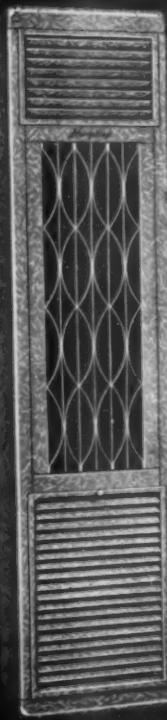
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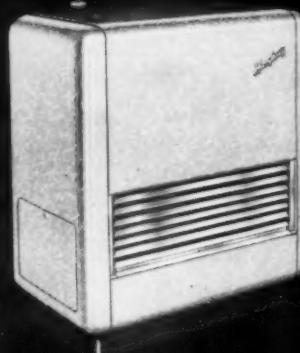
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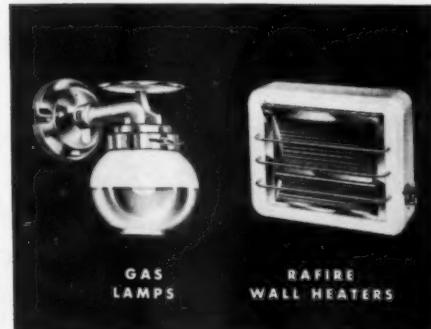
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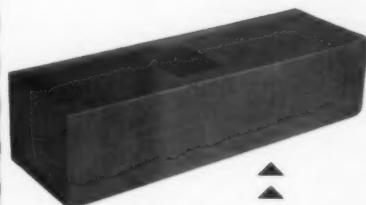
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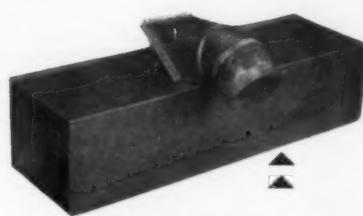
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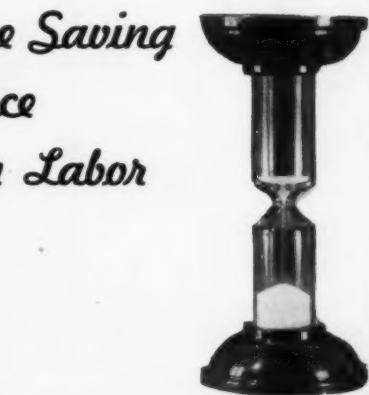
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Because Heil units look better with their distinctive and durable two-tone baked enamel finishes, they sell better to quality-conscious buyers. Their beauty is not skin deep, either... upon looking inside, you'll find top engineering design in the "working" parts, too!

4. MARKETING

The Heil Co.'s established policy of fair dealing and generous co-operation has won friends far and wide. Compare our dating plan and floor plan arrangements... our co-operative advertising helps.



14 Gas-Fired Winter Air Conditioners
(BTU range: 60,000 to 200,000)



6 Gas-Fired Boiler-Burner Units
(BTU range: 70,000 to 200,000)



12 Summer Air Conditioners
(Cooling Capacities: 24,000 to 36,000)
(Water and Air Cooled Units Available)



(3) Gas Conversion Burners
(BTU Output range: 70,000 to 400,000)



13 Oil-Fired Winter Air Conditioners
(BTU range: 84,000 to 224,000)



6 Oil-Fired Boiler-Burner Units
(BTU range: 93,000 to 252,000)



4 Oil Conversion Burners
(GPH Capacities: 0.50 to 6.00)

The Heil Co. is a member of  GAMA and an associate member of  ASHRAE

THE HEIL CO.

3081 W. Montana St.
Milwaukee, Wisconsin • Hillside, New Jersey

SALES OFFICES: New York, N.Y.; Union, N.J.; Atlanta, Ga.; Cleveland, Ohio; Chicago, Ill.; Milwaukee, Wis.; Kansas City, Mo.; Denver, Colo.; Dallas, Texas; Los Angeles, Calif.; Seattle, Wash.

whatever the need...in any home...
you can use the same

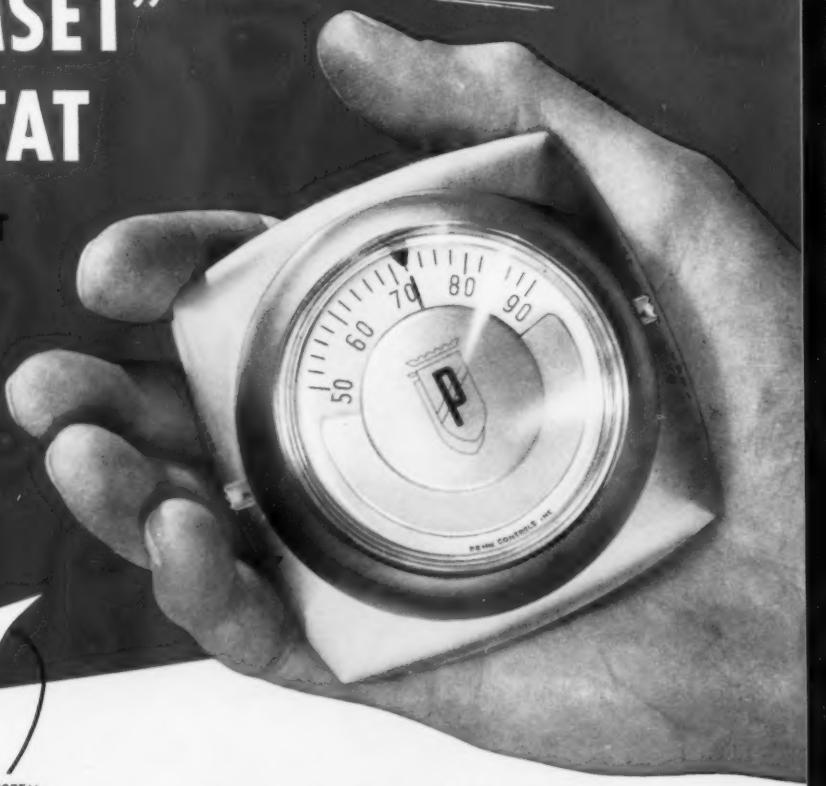


PENN "RIMSET" THERMOSTAT

FOR 12 DIFFERENT
HEATING AND
COOLING JOBS



APPLICATION	FAN SELECTOR SWITCH	SYSTEM SELECTOR SWITCH
HEATING ONLY	—	—
	—	AUTO-OFF
COOLING ONLY	—	—
	—	AUTO-OFF
COOLING—with system interlock for separate heating thermostat	AUTO-ON	AUTO-OFF
	AUTO-ON	—
COMBINATION Heating-Cooling	—	HEAT-OFF-COOL
	AUTO-ON	HEAT-OFF-COOL
	—	HEAT-COOL
	AUTO-ON	HEAT-COOL
	—	HEAT-OFF-COOL
	AUTO-ON	HEAT-OFF-COOL



...it reduces your inventory

Look at the chart . . . you'll see that 12 different sub-bases are available for heating, cooling or any combination . . . and, *one thermostat unit*, the Penn "RIMSET," fits them all. You just stock variables of the sub-base. Thus, if cooling is added later to a heating installation . . . simply change sub-base and use the same thermostat!

...it is easier to install

Leveling is not essential. All wiring is on sub-base where large terminals are accessible. Thermostat is simply plugged into sub-base.

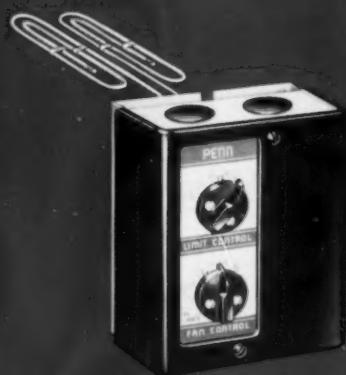
...easiest-to-read thermostat

And, the Penn "RIMSET" is today's easiest-to-read thermostat. When setting temperature, simply dial the rim . . . the extra large dial face remains stationary. Once you try this new, better thermostat, you'll want it on all your heating and cooling jobs.

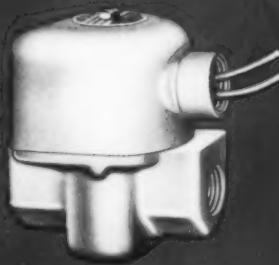
AND, THERE'S MORE . . .



New oil burner stack switch with today's most advanced features. Type 680 for continuous and Type 682 for intermittent ignition.



Type 520 liquid expansion combination fan and limit control with calibrated dials for warm air furnaces.



Type 926 gas valve with straight-through flow and vertical self-cleaning seat. Pressure regulators and pilots available.



Series 753 air conditioning control center for self-contained package air conditioning for either residential or commercial jobs.



Type 442 safety limit or operating immersion control with "trigger-quick" response for hot water jobs.

ON HEATING AND COOLING SYSTEMS...

PENN AUTOMATIC CONTROLS "STAY ON THE JOB" LONGER

If you've ever used Penn controls, you know from experience how dependable and accurate they are. If you haven't, then, try them . . . here's what you'll discover . . .

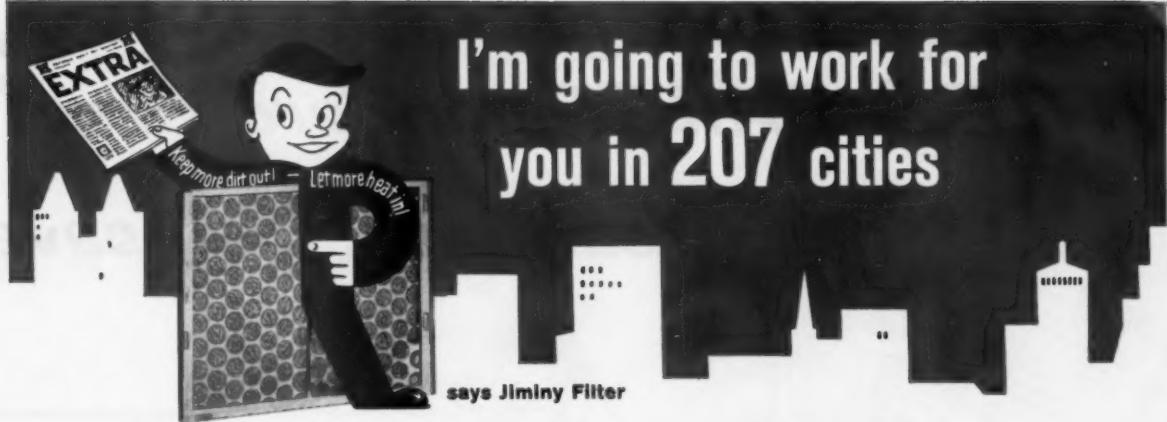
On any type of heating and cooling system, once Penn controls are installed properly, their dependability and accuracy always deliver the better comfort you sell! It's the kind of carefree performance that creates better-satisfied customers, more sales and more profit for you.

For convincing proof, specify and install Penn heating and cooling controls on your next job. A few models are shown on this page . . . there are many more from which you can select a type to exactly fit your needs. Ask your equipment manufacturer, or wholesaler.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES



I'm going to work for you in 207 cities

says Jiminy Filter

FIND YOUR TOWN among the 207 cities where Sunday supplements will carry advertising of Fiberglas* DUST-STOP* furnace filters during the fall selling season. Here's local advertising support delivered right to your customers' doorsteps—24 million strong! Be the first in your town to tie in with this program. Your DUST-STOP Distributor will supply Jiminy Filter Display, banners and other materials FREE! Owens-Corning Fiberglas Corporation, Dept. 35-H, Toledo 1, Ohio.

- A** Abilene, Texas
Albany, Ga.
Albert Lea, Minn.
Altoona, Pa.
Altus, Okla.
Anderson, Ind.
Anderson, S. C.
Anniston, Ala.
Ardmore, Okla.
Asbury Park, N. J.
Ashland, Ky.
Athens, Ohio
Atlanta, Ga.
Austin, Texas
- B** Bakersfield, Calif.
Baltimore, Md.
Beckley, W. Va.
Big Spring, Texas
Biloxi, Miss.
Birmingham, Ala.
Bloomington, Ill.
Bluefield, W. Va.
Bogalusa, La.
Boise, Idaho
Boston, Mass.
Bowling Green, Ky.
Brownsville, Texas
Buffalo, N. Y.
Burlington, Vt.
- C** Canton, Ohio
Casper, Wyo.
Champaign-Urbana, Ill.
Charlotte, N. C.
Cheyenne, Wyo.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Colorado Springs, Colo.
Columbus, Ohio
Concord, N. C.
Coshocton, Ohio
Council Bluffs, Iowa
Cumberland, Md.
- D** Dallas, Texas
Danville, Ill.
Danville, Va.
Davenport, Iowa
Dayton, Ohio
Daytona Beach, Fla.
Denison, Texas
Denton, Texas
Denver, Colo.
Des Moines, Iowa
Detroit, Mich.
Dothan, Ala.
Dubuque, Iowa
Duncan, Okla.
- E** El Dorado, Ark.
Elmira, N. Y.
Enid, Okla.
Eugene, Ore.
Eureka, Calif.
- F** Fairmont, W. Va.
Fayetteville, N. C.
Florence, Ala.
Florence, S. C.
Fort Lauderdale, Fla.
Fort Myers, Fla.
- G** Gadsden, Ala.
Gainesville, Fla.
Galveston, Texas
Grand Junction, Colo.
Grand Rapids, Mich.
Greenville, Miss.
Greenville, Texas
- H** Harlingen, Texas
High Point, N. C.
Hobbs, N. M.
Hot Springs, Ark.
Houston, Texas
Huntington, Ind.
Huntsville, Ala.
Huron, S. D.
- I** Idaho Falls, Idaho
Indianapolis, Ind.
Ironton, Ohio
- J** Jackson, Tenn.
Jacksonville, Fla.
Jefferson City, Mo.
- K** Kankakee, Ill.
Kansas City, Mo.
Kilgore, Texas
Kingsport, Tenn.
Klamath Falls, Ore.
- L** Lafayette, La.
Lake Charles, La.
Lancaster, Pa.
Laredo, Texas
La Salle, Ill.
Las Vegas, Nev.
Lawton, Okla.
Lewiston, Idaho
Lima, Ohio
Logan, Utah
Logansport, Ind.
Lorain, Ohio
Los Angeles, Calif.
Louisville, Ky.
Lowell, Mass.
Lufkin, Texas
Lynchburg, Va.
- M** Manchester, N. H.
Mansfield, Ohio
Marion, Ind.
Marshall, Texas
McAllen, Texas
Medford, Ore.
Memphis, Tenn.
Meridian, Miss.
Miami, Fla.
Middletown, Ohio
Midland, Texas
Milwaukee, Wisc.
Minneapolis, Minn.
Monterey, Calif.
Muncie, Ind.
- N** New Albany, Ind.
New Brunswick, N. J.
New Haven, Conn.
New Orleans, La.
New York, N. Y.
Newark, Ohio
Norfolk, Va.
- O** Ogden, Utah
Orlando, Fla.
Owensboro, Ky.
- P** Paducah, Ky.
Panama City, Fla.
Paris, Texas
Parkersburg, W. Va.
Pasco, Wash.
Pensacola, Fla.
Philadelphia, Pa.
Phoenix, Ariz.
Pine Bluff, Ark.
Pittsburgh, Pa.
Pocatello, Idaho
Port Arthur, Texas
Portland, Ore.
Poughkeepsie, N. Y.
Providence, R. I.
Provo, Utah
Pueblo, Colo.
- Q** Quincy, Ill.
- R** Racine, Wisc.
Rapid City, S. D.
Reno, Nev.
Richmond, Va.
Rochester, N. Y.
Rome, Ga.
Roswell, N. M.
- S** Sacramento, Calif.
St. Louis, Mo.
Salem, Ore.
Salisbury, N. C.
Salt Lake City, Utah
- T** Tallahassee, Fla.
Tampa, Fla.
Texarkana, Texas
Toledo, Ohio
Trenton, N. J.
Tupelo, Miss.
Tuscaloosa, Ala.
Tyler, Texas
- U** Utica, N. Y.
- V** Vallejo, Calif.
Vicksburg, Miss.
Victoria, Texas
Vincennes, Ind.
- W** Waco, Texas
Walla Walla, Wash.
Washington, D. C.
Waterloo, Iowa
Wenatchee, Wash.
West Palm Beach, Fla.
Wichita, Kan.
Wichita Falls, Texas
- Y** Yuma, Ariz.
- Z** Zanesville, Ohio

OWENS-CORNING
FIBERGLAS

DUST STOP AIR FILTERS

*Fiberglas and Dust-Stop are trade-marks (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation.

**"Boy, you sure get faster delivery
TUTTLE & BAILEY standard sizes!"**

"Yeah, and they save

Our two friends are wise, indeed, and so are the majority of those who specify and install air distribution devices for jobs large or small. From experience they know that when Tuttle & Bailey initiated *standard sizes* (ten years ago!) for grilles, registers and ceiling diffusers it had many real benefits, and still does.

It means that T&B *stocks* standard sizes and that in turn means faster delivery, faster completion of jobs and more satisfied owners. Very important, too, standard sizes are *priced lower!* Incidentally, experience has also proved that T&B standard sizes can meet at least 95% of job requirements.

**Use this reference chart
of TUTTLE & BAILEY standard sizes**

T&B TRI-FLEX supply air grilles and registers

T60	Single deflection grille (vertical face bars)
T64	Double deflection grille (vertical face bars, horizontal rear bars)
T55	Double deflection grille (horizontal face bars, vertical rear bars)
T67	Single deflection register (vertical face bars, vertical damper blades)
T647	Double deflection register (vertical face bars, horizontal rear bars, vertical damper blades)

26 standard sizes

8x4	12x6	16x6	24x6	30x8
10x4	14x4	20x5	24x8	30x10
10x6	14x5	20x6	24x10	30x12
12x4	14x6	20x8	24x12	36x8
12x5	16x5	24x5	30x6	36x10
				36x12

T&B AEROVANE return air grilles and registers

T70D	Grille (horizontal bars)
T78	Register (horizontal face bars, horizontal damper blades)
T88	Register (vertical face bars, horizontal damper blades)

20 standard sizes

10x6	12x12	24x12	30x18	36x30
10x8	18x6	24x18	30x24	48x24
12x6	18x12	24x24	36x18	48x30
12x8	18x18	30x12	36x24	48x36

when you order

you money, too!"



you money, too!"



T&B VENTILATING REGISTERS (No. 7908)

23 standard sizes

6x4	8x6	8x8	18x8	24x12
8x4	10x6	10x8	10x10	14x14
10x4	12x6	12x8	12x10	16x16
6x6	18x6	14x8	12x12	18x18
		16x8	18x12	24x24

T&B AEROFUSE CEILING DIFFUSERS

Adjustable Pattern

Type PA 6-8-10-12-14-16-18

Fixed Pattern

Type PS, stepped down 6-8-10-12-14-16-18

Type PF, flush 6-8-10-12-14-16-18

Type PR, supply and return 6-8-10-12-14-16-18

Type PH, half-round 6-8-10-12-14-16

Type D, square 6-8-10-12

Type ES, stepped down 6-8-10-12-15-18-22

Type S, flush 6-8-10-12-15-18-21

Standard Sizes

(supply duct dia. = listed size in inches)

6-8-10-12-14-16-18

Dampers, grids and other accessory equipment available in standard sizes for use with the above Aerofuse Ceiling Diffusers.

I'd suggest . . .

get in touch with your nearest Tuttle & Bailey Representative and discuss with him *T&B standard sizes*. See for yourself how they can help you get your next job completed faster . . . and save you money, too.

TUTTLE & BAILEY

division of Allied Thermal Corp.  New Britain, Connecticut



Job Signs Reflect Quality of Work

COMPANY IDENTIFICATION with every job being installed has been proved effective in sales promotion. Job site signs let the public know who is making the installation and often bring in leads from people in the neighborhood who are making plans for new heating or cooling systems. The effectiveness of the sign depends upon the type used. John C. Mauldin, John Mauldin, Inc., Atlanta, believes that the sign should go up at the same time the builder starts to erect the frame for the walls.

Two-Stage Signs Used

Mr. Mauldin's first sign is usually 26 X 42 in. with a wooden background to protect the sign while carpenters are moving long timbers around the building area. The sign is placed near the street to give it as much prominence as possible. The message is primarily designed to let the public know that the heating or heating-cooling system is being installed by John Mauldin, Inc.

After the walls have been erected, a larger sign is set up near the front doorway. This sign usually gives more information about the installation. It points out that a perimeter system is being used, quotes the manufacturer's brand name and describes the type of registers used. The sign also lists all the services offered by the company, gives the company address and phone number, and invites inquiries on how to "solve your heating-cooling problem."



BEST RESULTS from job site are obtained if the sign is placed as soon as the wall frames are raised. John G. Mauldin and son, John, Jr., make this a standard practice

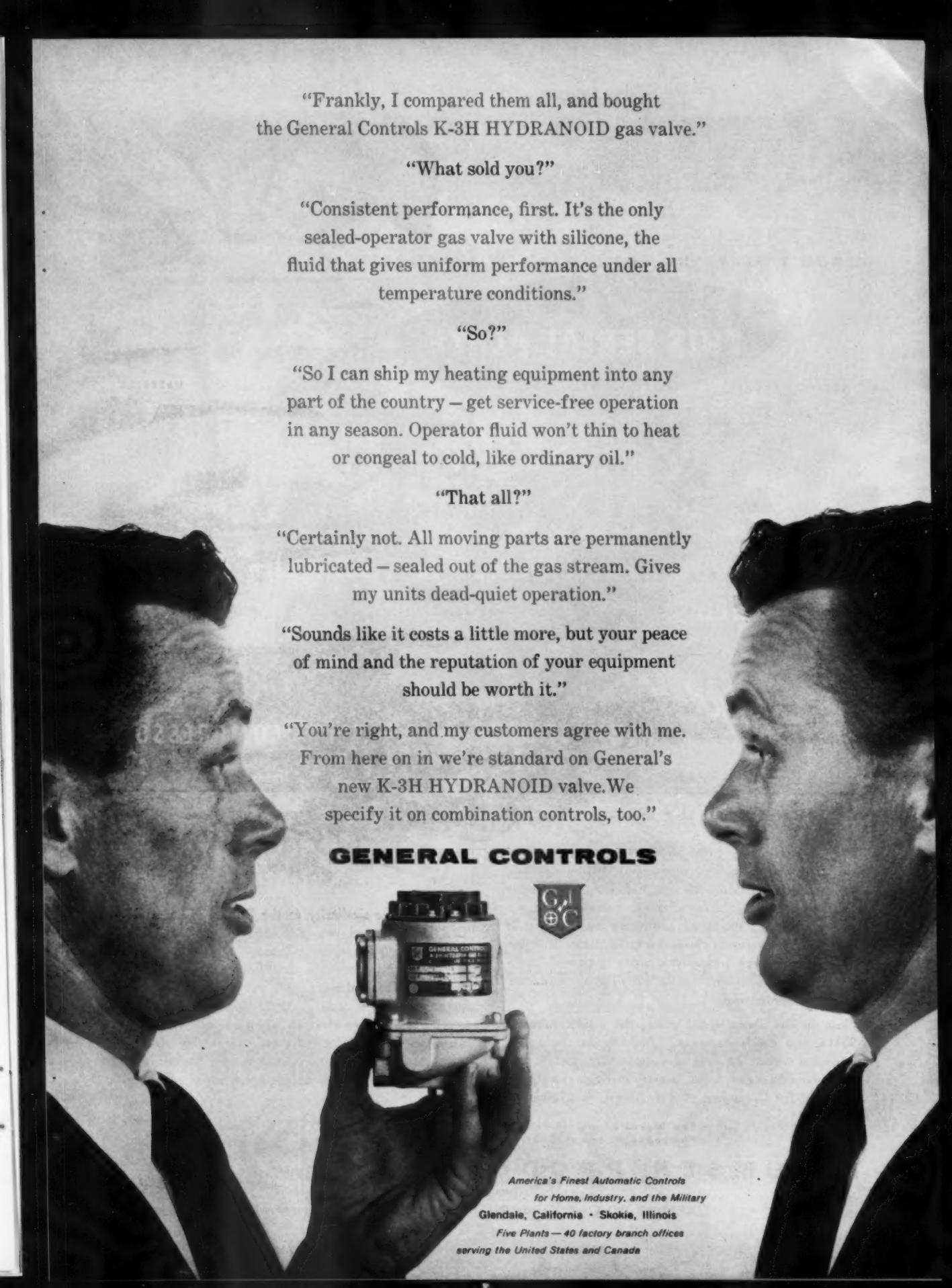
There are all types of job site signs. Each type has some advantage over others, but most are designed for easy reading. Large lettering is favored for the most essential words. The object is to draw attention from a distance, then tell the secondary message when the reader is nearer.

Sign Must Be Secure

Job site signs usually are installed in one of three ways: 1) on a pointed post which is to be driven into the earth; 2) in a frame that fastens to the building wall; 3) on sawhorse legs, to permit locating the sign wherever it appears to be most advantageous.

All job site signs should be securely fastened to a stout frame that will protect them from weather and the abuses usually encountered on a construction job. Signs should be kept clean and should be replaced or repaired when the first indication of deterioration appears. An ill-kept sign can create an unfavorable impression — it might suggest to a passerby that the condition of the sign reflects the kind of work performed by the company.

Signs should always be used at the job site whether the job is a one day modification of an existing residential system or a two year erection job in a new office building or other large job.



"Frankly, I compared them all, and bought the General Controls K-3H HYDRANOID gas valve."

"What sold you?"

"Consistent performance, first. It's the only sealed-operator gas valve with silicone, the fluid that gives uniform performance under all temperature conditions."

"So?"

"So I can ship my heating equipment into any part of the country — get service-free operation in any season. Operator fluid won't thin to heat or congeal to cold, like ordinary oil."

"That all?"

"Certainly not. All moving parts are permanently lubricated — sealed out of the gas stream. Gives my units dead-quiet operation."

"Sounds like it costs a little more, but your peace of mind and the reputation of your equipment should be worth it."

"You're right, and my customers agree with me. From here on in we're standard on General's new K-3H HYDRANOID valve. We specify it on combination controls, too."

GENERAL CONTROLS



America's Finest Automatic Controls

for Home, Industry, and the Military

Glendale, California • Skokie, Illinois

*Five Plants — 40 factory branch offices
serving the United States and Canada*

DON'T PLAY THE SHELL GAME WITH COMPRESSORS!



THIS SERIAL PLATE

SERIAL NUMBER

BILL OF MATERIAL

56	432772	TP	13371-3
A5	V115	HP $\frac{1}{3}$	S3414
CY 50/60	AMP 5.5	LRA 23.0	

tells you exactly what is under the shell
of each

Tecumseh
HERMETIC COMPRESSOR



Playing a guessing game with compressors can lead to costly call-backs and dissatisfied customers. The compressor selected by the original equipment manufacturer is engineered for that job and should be replaced by a like model or authorized parts. That is why it is important to check the serial plate. It is the only way you can properly identify Tecumseh compressors and make sure you have the right compressor for your application.

Note in the above serial plate, the model number S3414, and the horsepower, 1/3 H.P. In the upper left-hand corner, the year of manufacture. Below this is the month, coded A for January through the alphabet to M for December, plus the day (I is eliminated

because of the similarity to the Roman Numeral I). The compressor shown is a Model S3414, 1/3 HP, 115 V, 50/60 Cycle, built January 5, 1956. The bill of material number is the most important number on the serial plate and completely describes the compressor to us. It is necessary among other things, to determine the proper electrical components. With this information, your wholesaler can supply you with the exact replacement parts or the proper replacement compressor. Remember to check the serial plate and be sure!

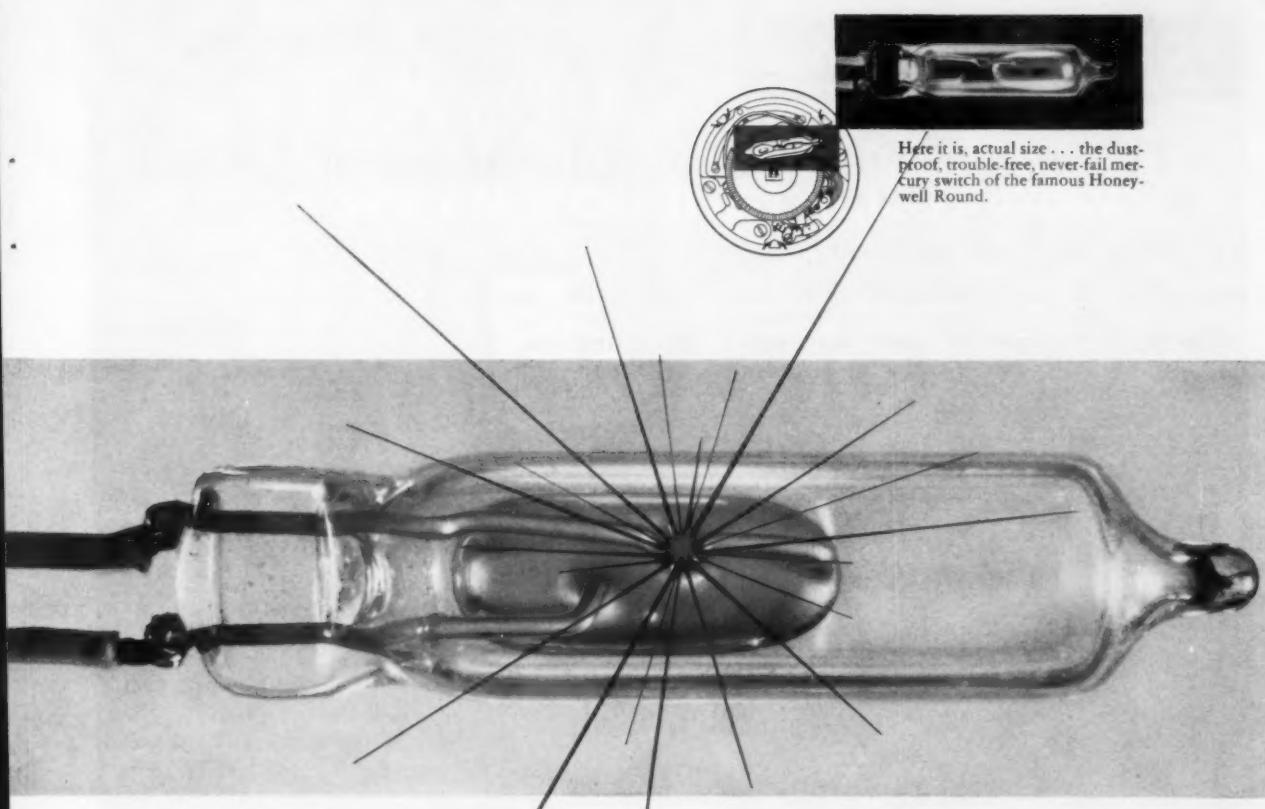


The World's Largest Producer of
Compressors for the Refrigeration Industry

TECUMSEH PRODUCTS CO.

EXPORT DEPT.—P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Michigan

Marion, Ohio
Tecumseh, Michigan



This drop of mercury
can cure 67%* of your
thermostat service headaches



Problem: 67%* of all thermostat service calls are due to dust and dirt which insulate electrical contacts. Such service calls are big fat headaches . . . they often mean nighttime trips, they're always unprofitable.

Solution: Specify the Honeywell Round. Its mercury switch is 100% dust and dirt proof, with electrical contacts completely sealed inside a glass tube.

The Honeywell Round
keeps trouble away from your door

* Source—leading Midwest utility survey

FTC Sues to Stop 'False' Advertising of Cooling

Complaint filed against manufacturer cites definition of air conditioning as basis for claim that advertised equipment does not serve this function

IN A COMPLAINT recently issued by the Federal Trade Commission, a manufacturer was accused of false representations in the advertising of its product as air conditioning equipment, and of unfairly diverting trade from its competitors in violation of the Federal Trade Commission Act.

That statute states, in part, "Unfair methods of competition in commerce and unfair or deceptive acts or practices in commerce are declared unlawful."

It is further provided that if the Commission finds that fraudulent methods, such as false advertising, have been employed, the Commission shall order the advertiser to "cease and desist from such method of competition or such act or practice," or face a penalty of not more than \$5000 for each offense.

Ads Make Several Claims

The advertisements referred to in the FTC's complaint said, "Enjoy Our Air Cool Comfort! Purified air — filters dust, dirt, soot and pollen. Helps dehumidify the air. Purifies the air. Establishes a zone of cooling comfort."

According to the complaint of the FTC this so-called air conditioning equipment was merely a small electric fan, a filter and two rubber trays in a rubber and plastic case. For operation two small cans of refrigerant were placed in these trays while the fan drew the air through the filters over the containers of refrigerant.

In the application of this statute to similar advertising, it was pointed out by a Federal court in an earlier

decision that three factors must be present to justify a "cease and desist" order. First, the method of advertising under criticism must be unfair; second, the advertising must relate to articles in commerce, and third, the action by the Commission must be on behalf of the public and not for the remedy or relief of an individual.

Private Rights Not Enough

Of this feature the Supreme Court of the United States said in a decision outlining the application of this law, "In determining whether the proposed proceeding will be in the public interest the Commission exercises a broad discretion. But the mere fact that it is in the interest of the community that private rights shall be respected is not enough.

"To justify filing a complaint the public interest must be specific and substantial. Often it is so because the unfair method employed threatens the existence of present or potential competition. Sometimes, because no private suit would be brought to stop the unfair conduct since the loss to each of the individuals affected is too small to warrant it, although the aggregate of the loss entailed may be so serious and widespread as to make the matter one of public consequence."

An order was one time made by the FTC against the further use of advertising in which a cosmetic cream was described as "rejuvenescent" or a method for the renewal of youth. In protest against this FTC order, the cosmetic manufacturer brought the order before the Federal

appellate court for review, contending that this word "rejuvenescent" was a non-descriptive and fanciful word, utilized solely for its attractiveness as a trade mark.

Court Rejects Argument

"There is no merit to the argument," asserted the court, "that since no straight thinking person could believe the product could rejuvenate, there could be no deception. Such a view is the consequence of a grave misconception of the purposes of the Federal Trade Commission Act.

"That law was not made," said the court, "for the protection of experts but for the public — that vast multitude which includes the ignorant, the unthinking and the credulous, and the fact that a false statement may be obviously false to those who are trained and experienced, does not change its character nor take away its power to deceive others less experienced.

"It is for this reason that the Commission may insist upon the most literal truthfulness in advertisements and should have the discretion, undisturbed by the courts, to insist if it chooses, upon a form of advertising clear enough so that, in the words of the Prophet Isaiah, wayfaring men, though fools, shall not err therein."

In the conclusion of its complaint against the manufacturer of the so-called air-conditioning equipment, the Commission asserts this equipment is not an appliance that will simultaneously control the temperature, humidity and circulation of the air and that the capacity of this advertised equipment is so slight that any reference to it as an air conditioning machine in an advertisement is unwarranted and a violation of the Federal Trade Commission Act.

There's Money In Conversion Burners

WHEN YOU INSTALL *Norman*®



NORMAN NP-3
available in models
from 50,000 to
300,000 BTU,
for natural, mixed
or LP gas.



- Norman is the simplest burner on the market to install.
- Norman has a wide variety of inshot and upshot models for all types of residential, commercial and industrial applications.



There are some mighty good profits waiting for you this year in the conversion burner market—but to make sure you make the most money—be sure to promote the famous Norman Conversion Burner.

Compare Norman with any other burner and you will see why it is the answer to immediate profits. Norman gives you more to sell . . . gives you more in profits with easier, quicker installations . . . lets you keep more because it assures trouble-free operation year in and year out.



NORMAN
INDUSTRIAL-COMMERCIAL
MODELS

— available with inputs
from 500,000 to
2,000,000 BTU.

Mail coupon today for complete
information and prices on
**NORMAN CONVERSION
BURNERS**



- Norman is trouble-free . . . performance proved in over a quarter of a million homes.
- Norman's improved principle of burning gas gives single flame economy.
- Norman can be equipped so no electricity is required.
- Norman fits any size or shape of round or rectangular furnace or boiler.
- Norman is backed by a 10 year warranty.

NORMAN PRODUCTS CO.

1164 Chesapeake Ave., Columbus 12, Ohio
Please rush complete information and prices on Norman Conversion Burners.

NAME _____

FIRM NAME _____

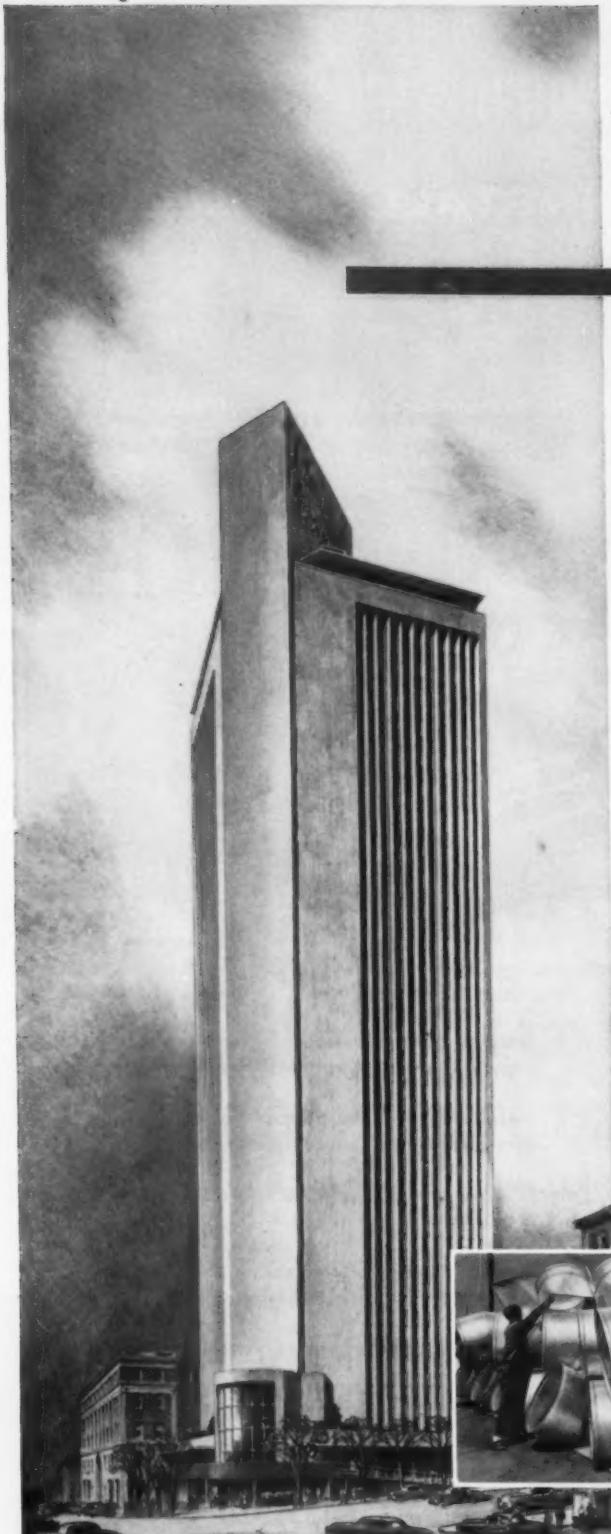
ADDRESS _____

CITY _____ ZONE _____ STATE _____

Norman®

products
company





As in the
**Life & Casualty
Tower**

Nashville, Tennessee

get longer lasting ducts
with Wheeling
SOFITITE® COP-R-LOY®
Galvanized Sheets

The tallest commercial building in the Southeast, the Life & Casualty Tower, has one of the most modern air conditioning systems yet installed. And for the duct work of this ultra-modern building, over 50 tons of Wheeling SOFITITE Cop-R-Loy Galvanized Sheets were used.

By using SOFITITE Cop-R-Loy, the builders were sure of getting top value and quality in long-lasting, easy-working, good-looking galvanized sheets.

For proof of SOFITITE Cop-R-Loy's superior qualities and for full details, contact the nearest Wheeling warehouse or sales office.



WHEELING CORRUGATING COMPANY
WHEELING, W. VA.

IT'S WHEELING STEEL

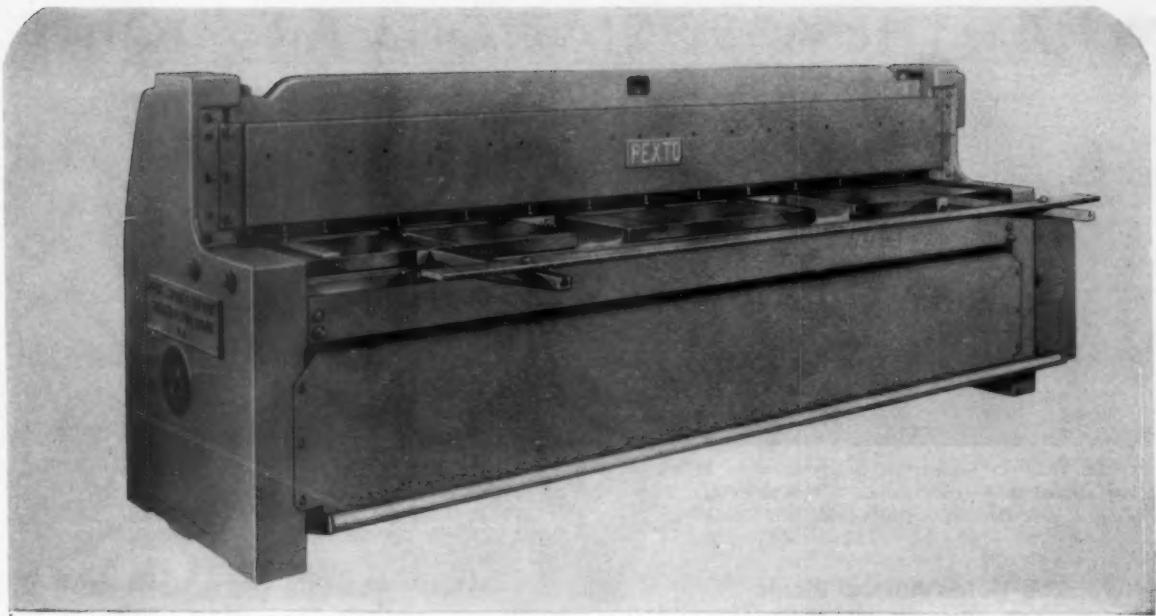


Ducts made of SOFITITE
Cop-R-Loy form easily,
last longer.

SOFITITE Cop-R-Loy is
easy to work, doesn't
flake or peel.

Architects: Edwin A. Keeble Associates Builders: J. A. Jones
Construction Co. Sheet Metal Work: John W. McDougall Co.

IMMEDIATE DELIVERY ON ALL WAREHOUSE-STOCKED ITEMS FROM THESE WAREHOUSES: BOSTON, BUFFALO, CHICAGO, COLUMBUS, DETROIT, KANSAS CITY, LOUISVILLE, MINNEAPOLIS, NEW ORLEANS, NEW YORK, PHILADELPHIA, RICHMOND, ST. LOUIS. SALES OFFICES: ATLANTA, HOUSTON



MODEL 14-U-10

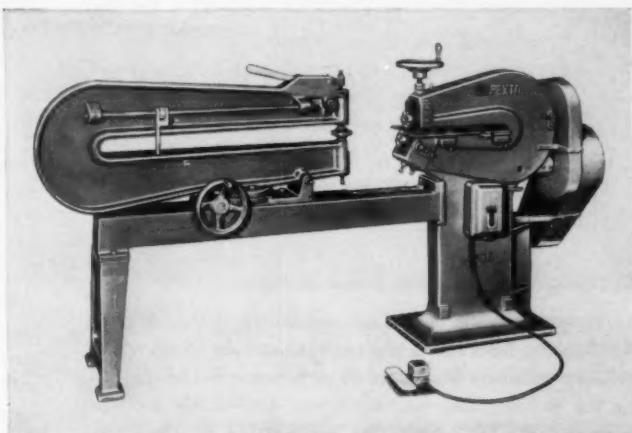
PEXTO POWER SQUARING SHEAR

New features . . . superb performance . . . quality engineered with self compensating holdown for fast, accurate, clean-cut, safe shearing of light gauge sheet steel, stainless, plastic, fibreboard, etc. Included in the design are all refinements of modern gauging, maximum cutting life of each of 4 edges of the knives, single or repeat clutch control, protection against scrap damage and complete safety guards. New Bulletin No. 57 on request.

POWER RING AND CIRCLE SHEAR

Improved machine cuts discs from square sheet metal, fibreboard, plastic blanks. Also cuts on inside of sheet for rings and gaskets.

Also complete line of machines and tools for sheet metal work.



THE PECK, STOW & WILCOX COMPANY, SINCE 1785, SOUTHBURY, CONNECTICUT, U.S.A.

WHAT THE ASSOCIATIONS ARE DOING



GOLF TROPHY winners are congratulated by Milwaukee association secretary Robert S. Schmieder (r). The winners were (l to r) Arthur Curtes, Ben Brozek



HORSE SHOE pitching contest at the Milwaukee picnic was won by Dick Schmidt (center), who receives his prize from Lyle O'Leary, picnic chairman

Milwaukee Holds Annual Picnic

THE ANNUAL baseball game between dealer members and associate members of the Sheet Metal Contractors' Association of Milwaukee was held during the association's summer stag picnic, July 17, at the Port Washington Country Club, Port Washington, Wis. The game ran for 13 innings, with the dealers winning 8 to 7. Picnic attendance was 168, with 57 arriving early in the morning to play golf. Low gross score prizes were awarded Ben Brozek, Brozek Heating & Sheet Metal Corp., representing the dealers, and Arthur M. Curtis, Auer Steel & Furnace Supply Co., representing the associate members.

The horse shoe pitching contest was won by Dick Schmidt, Mueller Climatrol, with Mike Poja, Poja Heating & Sheet Metal Co., winning a playoff for second place from Curt Ervin, Mueller Climatrol.

Along with the prizes for low gross scores, two gold plated traveling trophies were awarded to Ben Brozek and Arthur M. Curtis. These trophies will be engraved with the names of this year's winners who will display them at their places of business until next year's tournament, at which time they must defend their claim to the title of tournament champion.

Dealers and associate members who did not participate in the athletic activities found relaxation at the various pinochle, bridge and sheepshead games.

Arrange Timely Release of Gas

A REPORT from the gas release committee of the Chicago Wholesalers Association shows what can be done when industry members join together to promote better service for the public. This committee was responsible for the release of 40,000 permits for gas heating by the local utility on July 15. This was 2½ months earlier than the usual annual release date.

The committee pointed out that by releasing the permits early in the summer, it would be possible for the

dealers to have more time to schedule installations at the convenience of both the buyer and the installer.

"In the past the usual rush of the normal fall busy season, plus the additional work load brought on by a large release of gas permits, often created undesirable situations that can now be avoided," said Ray Guenther, committee chairman.

The association also made tentative plans to conduct a dealer management school at Northwestern University (Chicago campus) sometime between Jan. 1 and March 31. This school will be a joint project between the local wholesalers group and the National Heating and Air-Conditioning Wholesalers association. Charles R. Bennett, president of the local group, will head the committee in charge of attendance at the school.

A report on a survey conducted by the cooling equipment service committee indicated that Chicago dealers prefer to handle their own summer air conditioning service and installations, rather than subcontract this work to service organizations specializing in it.

NHAW Forms Booster Club

A BOOSTER CLUB has been formed within the National Heating and Air Conditioning Wholesalers as a means of stimulating membership. Members can qualify for the 1957 Booster Club by signing up one or more new members in the period between last year's fall convention and the one to be held Nov. 18-20 in Chicago this year.

Prizes will be awarded at the fall convention to outstanding boosters. First prize will be hotel room, registration fee and convention expenses for the winner and his wife and election to the presidency of the Booster Club for 1958. Second prize will cover the same expenses for the winner only and vice-presidency of the Booster Club for the following year.

Members announced so far include: C. B. Buckley,

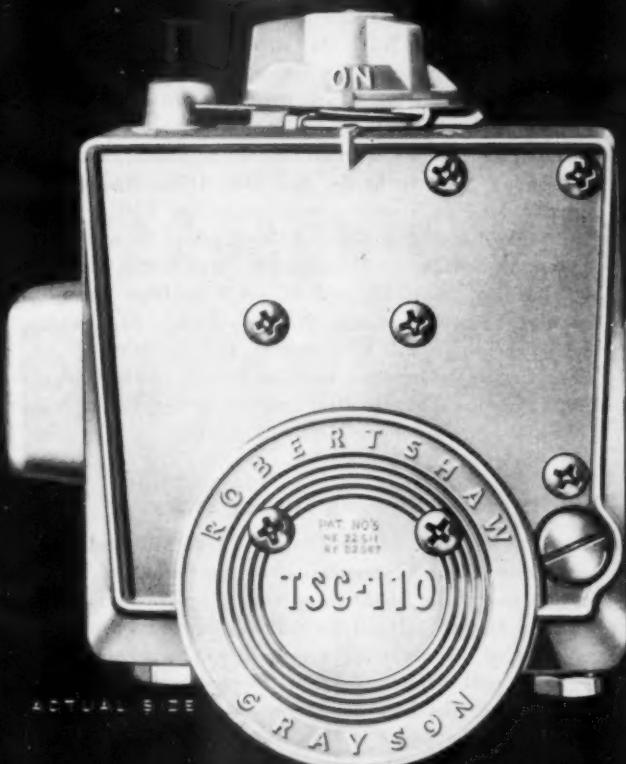
(Continued on page 104)



Robertshaw-Grayson

TSC-110

manual gas control
for low cost
space heaters!



Now for the first time, ROBERTSHAW-GRAYSON announces a *new* manual control, the TSC-110... a low cost manual control for low cost, low capacity gas-fired space heaters. Switch your production to the new ROBERTSHAW-GRAYSON TSC-110 and you'll cut assembly line costs... gain added safety and dependability! The new TSC-110 installs easily, quickly, at low cost... requires a minimum of service on the job! Look at these features!

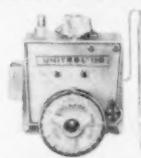
- Metal stop prevents accidental shut-off of pilot
- Standardized manifold piping cuts inventory expense
- 100% automatic shut-off of both pilot and main burner
- EXCLUSIVE—can be ordered with or without dust & gum filter

NEW! DEPENDABLE...SAFE!

A ROBERTSHAW-GRAYSON SPACE HEATER
CONTROL FOR EVERY SPECIFICATION...



For wall thermostat operations... the beautiful, automatic Unitrol 400E offers a complete, compact control... ideal for the vented, recessed wall heaters and small, competitive forced air units!



UNITROL
110S

...a low cost, automatic, thermostatically controlled, "Cold Air Return" control for gas-fired floor furnaces, wall heaters and console heaters... features the safety and dependability of an automatic, 100% shut-off safety pilot.

CALL, WRITE OR WIRE! To find out more about the new ROBERTSHAW-GRAYSON Manual TSC-110, contact Grayson Controls Division today!



Robertshaw-Fulton
CONTROLS COMPANY
GRAYSON CONTROLS DIVISION
LONG BEACH, CALIFORNIA

WITH THE ASSOCIATIONS

(Continued from page 102)

J. J. Hildebidle, Roy Brainard, C. R. Bennett, Oscar Brauer, Charles L. Brooks, Floyd Doubleday, A. G. Earnshaw, John Robertson, Ernie Webb, and George Zimbelman. George Sprick, membership chairman, is in charge of the promotion of the club. Both active and associate memberships are included in the campaign.

WAHINC Promotes Consumer Booklet

A PROGRAM of promotion to encourage wide distribution of a new booklet advising homeowners of "House Heating Secrets" has been planned by the Warm Air Heating Institute of Northern California. Thousands of copies of the Institute's booklet will be offered free to prospects in the northern part of the state.

The booklets will be distributed through consumer



CONSUMER education program of the WAHINC features this attractive booklet printed in three colors

magazine ads, through radio spot announcements, at fairs and through warm air heating dealers. Copies have been sent to builders, real estate developers and loan officers of financial institutions.

The booklet is printed in three colors and is well illustrated. It has been extensively revised over last year's edition. The pocket sized brochure features a young couple, Nancy and Bob, who are house hunting, and tells of the advice they receive on home heating from a friend in the heating business and from others interested in the field.

A new feature of the booklet is a check list on the back cover. The check list can be used by the home buyer or owner in evaluating any heating system.

The booklet is a key unit in the Institute's program of improving conditions in the industry through con-

sumer education. The program is financed through funds raised from the sale of stamps to manufacturers. The cost of the stamps is passed along to the consumer.

New England Oil Heat Schools Set

PLANS HAVE BEEN announced for the 13th annual Oil Heat Service School presented by the Oil Heat Institute of New England. The school will be presented in three groups. The first group includes courses to be held in Salem, Mass.; Augusta and Portland, Me.; and Manchester and Keene, N.H. The second group of courses will be held in Metropolitan Boston and eastern Massachusetts. The third group will cover western Massachusetts, Connecticut and Rhode Island.

The first group will open at 5 Broad St., Salem, Mass., on Monday, Sept. 9; at the New State Office Building, Augusta, Me., on Tuesday, Sept. 10; at the YMCA, 70 Forest Ave., Portland, Me., on Wednesday, September 11; at the YMCA, 30 Mechanic St., Manchester, N.H., on Thursday, Sept. 12, and at the Fire Dept. headquarters, Vernon St., Keene, N.H., on Friday, Sept. 13. The other groups will be presented at later dates.

For further information write to Ivan C. Sutherland, director of education, Oil Heat Institute of New England, 839 Beacon St., Boston 15, Mass.

Detroit Hears Cooling Survey Story

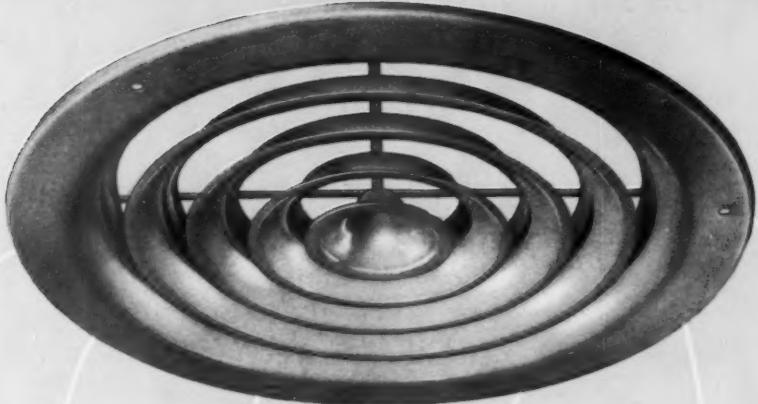
THE JULY MEETING of the Detroit Warm Air Heating Association heard a presentation on the results of the duPont central air conditioning survey by Norman W. Kent and James Wright of the duPont company. The survey revealed that there are some 270,000 households in the nation with definite plans for the purchase of central cooling. Since the bulk of the present owners are concentrated in the upper income brackets, the market at present is selective. The survey also revealed that there is little shopping around by the buyers and that few of them have ever been contacted by a salesman for central cooling.

William Hawkins, assistant general manager, Stewart-Warner Corp., followed the survey discussion with a talk pointing out the opportunities open to heating contractors in the central cooling field.

Florida Committees Appointed

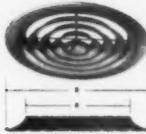
THE APPOINTMENT of committees for the Roofing and Sheet Metal Contractors Association of Florida was announced by President R. D. Tucker, Ocala. They are as follows: safety — A. C. Ferguson (chairman), W. J. Lohman, Walter Anschuetz, Bill Palmer; labor relations and apprenticeship — Victor Kinsey (chairman), John

(Continued on page 108)



high volume diffusion without drafts, for 2 way systems

STANDARD CEILING AIR DIFFUSERS



FLUSH MODEL



NEW!

BUTTERFLY DAMPER!
COMBINATION SCREW
ADJUSTMENT AND
CHAIN CONTROL



EXTENDED MODEL



DIFFUSER
DAMPERS

INSTALLATION
RINGS



- full dimension distribution of warm or cool air
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Mail coupon for complete line catalog!

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plus style
at attractive
prices!*

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Standard Stamping & Perforating Co.
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Please send your new free catalog.

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Company _____

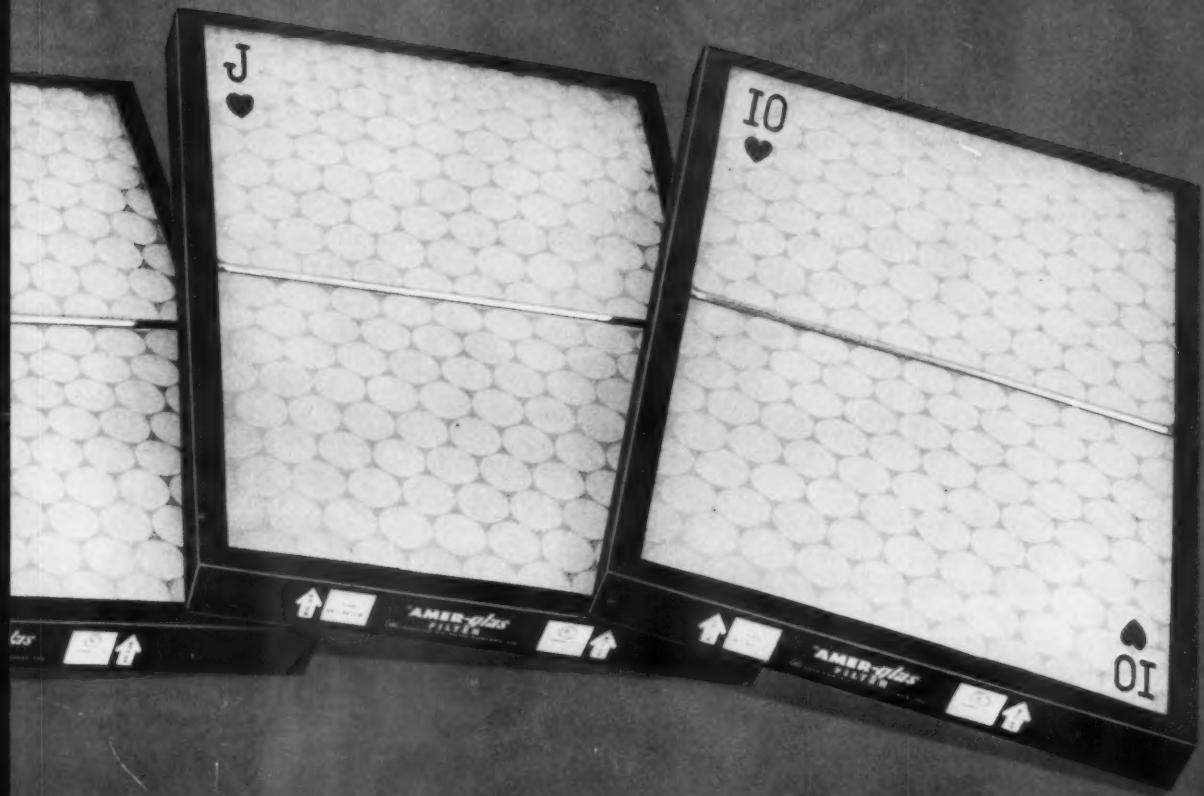
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Let us deal you in for extra filter profits

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- ♥ The original progressive pack filter.
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American Air Filter
COMPANY, INC.
Louisville 8, Kentucky

AMERICAN AIR FILTER CO., INC.

355 Central Avenue, Louisville 8, Ky.

Please rush me complete information on selling the profitable line of AMER-glas FILTERS.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

WITH THE ASSOCIATIONS

(Continued from page 104)

Diaz, David Hess, W. L. Sims; legislative — John Dove and O. J. Nettles (co-chairmen), John A. Gross, Raymond Horst, W. J. Lohman; insurance — George Ferber (chairman), E. C. Goldman, Vernon Blank, Victor Kinsey, W. L. Sims; code of ethics — Joseph C. Loudermilk (chairman), Howard Carpenter, B. B. McCormick, Jack McCormick; ways and means — Norman Sandell (chairman), Don Brown, F. C. Ault, Joe Aizpuru; Florida Building Industry Council — Steve Raymond (chairman), John Diaz, Jack Strong; membership — Mack Fillingham (chairman), Wiley Shepard, Vernon Blank, John Dove, Glenn McNabb, Norm Jackson.

New York Reveals Convention Date

PLANS FOR the 1958 convention of the New York State Sheet Metal, Roofing and Air Conditioning Contractor's Association have been announced by Clarence J. Meyer, executive secretary. The meeting will be held Feb. 2-5 at the Van Curler Hotel, Schenectady, N.Y. For further information write to Mr. Meyer, 569 Genesee St., Buffalo 4, N.Y.

Cleveland Considers Boost in Bond

AN ORDINANCE increasing the bond of all heating contractors from the present \$1000 to \$5000 is under consideration by the Cleveland city council. The measure has the support of the Cuyahoga County Sheet Metal Contractors Association. The association is also asking its members in other communities in the county to work towards similar legislation in their own areas. Ray O'Hara, executive secretary of the county organization, said that he understands that bonding companies will carefully check each contractor before issuing a new bond if the ordinance passes.

The association is also attempting to secure passage of an ordinance which would require separate bids for the mechanical trades on all city construction costing more than \$1000.

Ontario Schools to Offer Training

A COURSE of instruction in warm air heating and air conditioning will be offered this fall as part of the sheet metal training program in 33 of Ontario's vocational training schools. The course was planned at a four day technical conference held at McMaster University in Hamilton by the sheet metal teachers' section of the Ontario Educational Association in conjunction with the National Warm Air Heating and Air Conditioning Association of Canada.

In an address before the conference, NWAHACAC's president, M. M. Miller, said, "Heating and cooling has become so technical that it requires fully trained person-

nel for its installation. At the present time the industry is faced with the serious problem of not being able to obtain personnel with previous basic training. Although our association is proud of its four day Indoor Comfort Schools, the time is not sufficient for teaching this basic theory. Your plan of introducing this course is a great step forward in further protection for the Canadian consumer."

The reports from the conference committees were submitted to the NWAHACAC's technical advisory committee for analysis and the compilation of a manual for use in the course.

Larger Southeast Exposition Planned

PLANS FOR a larger Southeast Trade Exposition in 1958 are underway by the Sheet Metal, Roofing, Heating, Air Conditioning, Contractors' Association of Georgia — known as SMERO HACCA. The second annual exhibition is scheduled for March 27-30, 1958, at the Atlanta Biltmore Hotel, Atlanta, Ga. The Association has announced that exhibition space will be increased 50 percent over that of this year's show. Contractors from Alabama, Florida, Georgia, North and South Carolina and Tennessee will again be invited. Attendance at the 1957 exhibition was over 1000 and the event was considered highly successful by those in attendance.

Dubs Re-elected by Stoker Group

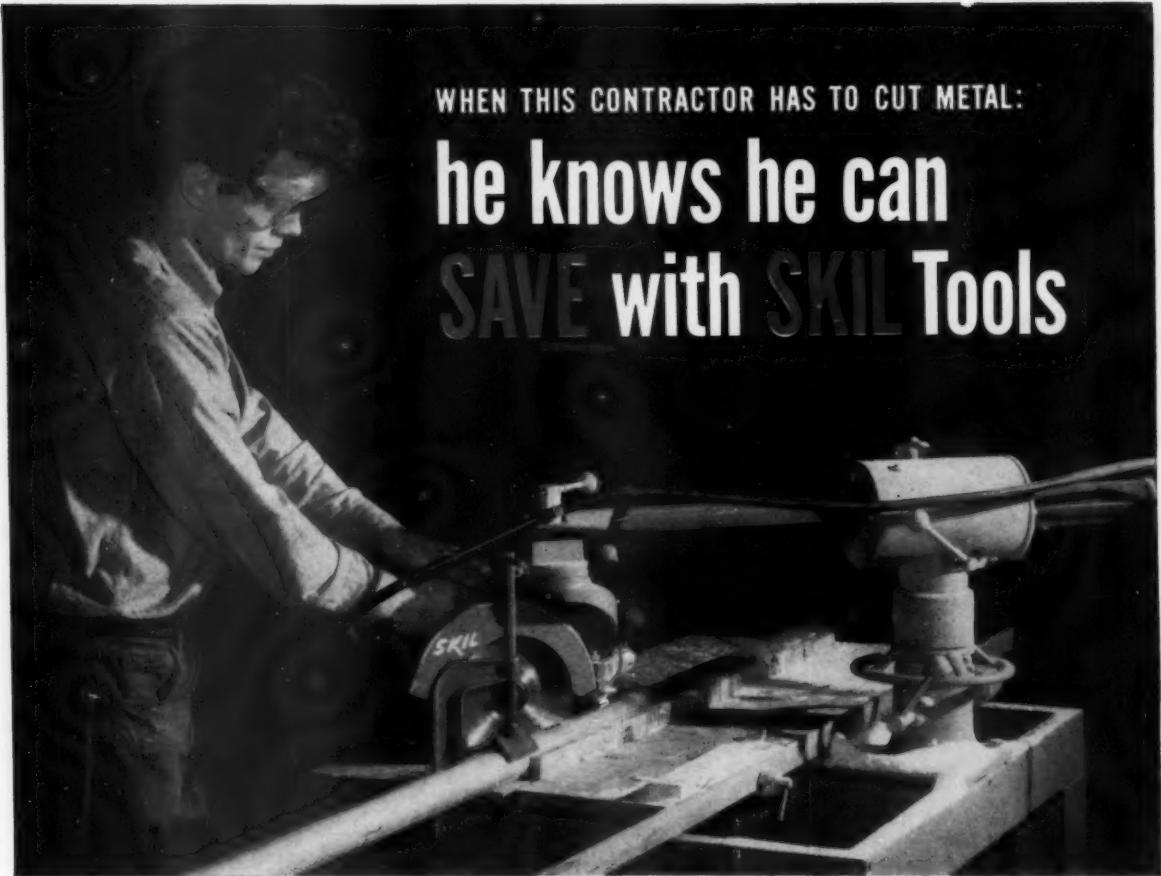
AT THE RECENT annual meeting of the Stoker Manufacturers Association, L. C. Dubs was re-elected president for an unprecedented fifth consecutive term. Mr. Dubs is president and general manager of the Canton Stoker Corp., Canton, Ohio. D. J. Sprague, chief engineer with the Ohio firm, was appointed chairman of the engineering committee of the association. Mr. Dubs and Mr. Sprague have contributed a great deal of time to the development of a technical manual jointly sponsored by the stoker manufacturers and the Air Pollution Control Association. The manual is expected to be ready sometime next year.

Members of the association reported a brighter outlook for increased sales volume on all sizes and models in 1957. Mr. Dubs attributed this increase to the rising prices of heavy fuel oils and gas in coal consuming areas and the increased sales promotion activity of the Bituminous Coal Institute.

Newspaper Features Air Conditioning

THE STORY of air conditioning, how it works and how it affects the health and comfort of the public, was told by the Institute of Heating and Air Conditioning Indus-

(Continued on page 112)



WHEN THIS CONTRACTOR HAS TO CUT METAL:
**he knows he can
SAVE with SKIL Tools**

Saves \$300 in six months

Increases Production 60%

The Limbach Company knows they **SAVE** with SKIL tools! They do it every day with the SKIL Portable Radial Saw shown in operation at their plant in Columbus, Ohio.

The operator is cutting 6000 series aluminum tubing. Plant Engineer Jack Tallant says: "We increased production on this operation by 60% with the SKIL Model 649

Radial. Within six months it paid for itself!"

This SKIL Portable Radial replaced a band-saw that cut too slowly and required extended set-up time. Model 649 is portable—weighs only 170 lbs. Can be used on-the-job or in the shop. Quickly cuts most metals, compositions, plastics, laminates and wood. Powerful 1½ H.P. universal-type motor. See your SKIL distributor for more information or use the coupon below.

ALL-AROUND $\frac{1}{4}$ " DRILL

Save with Heavy-Duty SKIL $\frac{1}{4}$ " Drill. High power output for any type drilling. For installation, fabrication, utility or maintenance, model 75 does the best all-around job.



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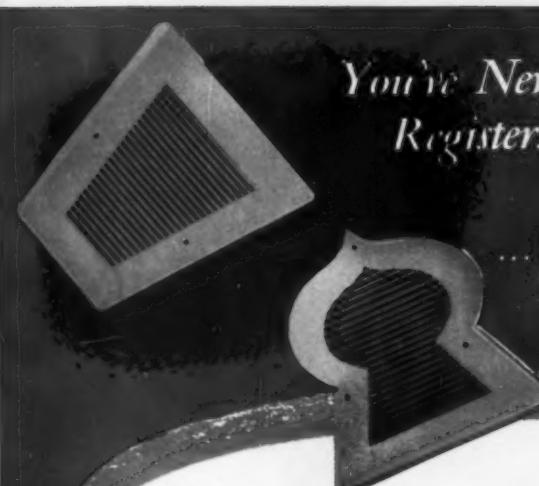
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Chicago 30, Illinois

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Toronto 9, Ontario

—Mail Coupon for Free Power Tool Catalog—

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Company _____
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Please send me new, illustrated catalog on SKIL Power Tools



You've Never Seen
Registers Like These...

Yet They're No More Ridiculous Than
The Dozens of Odd Size Registers
That Are on the Market

Lima STANDARDIZED LINE GIVES YOU ONLY
THE REGISTERS THAT YOU SELL MOST OFTEN

ONLY LIMA
gives you ALL
these profit
advantages:

- ✓ SIMPLIFIED INVENTORY
- ✓ LESS CAPITAL INVESTMENT
- ✓ FASTER TURN-OVER
- ✓ REDUCED WAREHOUSE SPACE
- ✓ SIMPLIFIED HANDLING
- ✓ BETTER QUALITY
- ✓ GREATER SALES APPEAL
- ✓ BETTER CUSTOMER SERVICE

If some manufacturer offered such crazy, odd-shaped registers as these — somebody would want to use them! You'd be expected to handle and stock them just like the many unnecessary odd-size registers that are being offered! Registers like these, we admit are ridiculous . . . but those odd-size registers are of doubtful value too . . . especially when you consider that 98% of your customers' register and diffuser needs can be answered with Lima's basic styles and sizes. Odd sizes account for so little of your business that they aren't worth their keep.

Ceiling, wall or floor, air conditioning or heating, residential or commercial . . . Lima's Standardized Line simplifies handling and inventory; reduces capital investment, improves your service by eliminating those odd sizes that rob you of warehouse space as they become dust-covered and obsolete.

The Lima line has been carefully planned to put more quality, more sales appeal into the product . . . and more profit into the pockets of the jobbers and dealers who sell Lima.

Many jobbers and dealers have already found out that Lima's Standardized Line answers their needs . . . BETTER . . . at LESS COST! It will pay you to make us prove our point.

Write us today!

Lima REGISTER COMPANY

1786 N. Cable Rd., Lima, Ohio

sold exclusively through wholesalers and manufacturers





PF-2002 Filter
PF-200 Element

Reduce your inventory problems...

THESE 4 PUROLATOR REFILLS
SERVICE 98% OF ALL
OIL BURNER FILTER INSTALLATIONS

With the addition of three new sizes, the famous PurOlator line of Micronic® filter refills (including gaskets) will now fit 98% of all oil burner installations.

In addition to supplying most requests from a minimum stock of four sizes, you can give your customers the five outstanding benefits of PurOlator Micronic filtration—*no matter what filter is installed on their job.*

1. Water and acid resistant element.
2. Uniform density filtering to .0005".
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4. Will not shrink, distort, stretch, flake or deteriorate.
5. A guaranteed filtering capacity of over 100 gallons per hour U.L. approved.

CROSS REFERENCE CHART

MANUFACTURER	Filter Model	PUR-OLATOR REFILL MODEL	REFILL SIZE	REFILL TYPE	REFILL ELEMENT TYPE	REFILL ELEMENT SIZE	REFILL ELEMENT THICKNESS	REFILL ELEMENT CAPACITY	REFILL ELEMENT TESTED FOR
CECOSOLICSA CETIC FIL.	B and FB-4 B and FB-6 B and FB-8	PF-200 PF-400 PF-67 PF-65	84-6 84-6 84-6					50	
LPI INCORPORATED	5-152 5-153	PF-43 PF-200				5-113 314	HR-25		
	1A-25 2A-700 2A-3000	PF-200 PF-43				80 314	HR-25 30-25	1A-20 2A-700 2A-311	
CLIFTON		PF-2002	PF-200					50	
CO. INC.	Re. 77	PF-200		CF-300	HR			50-30	
CO. INC.	3F-25	PF-200		CF-300		314	HR-25	3A-30	
DALE FIL.	8-300	PF-200*		CF-300	HR			6	
DALE FIL.	8-1100*	PF-200*		CF-300	HR			CF-1100*	

PUROLATOR REFILL FEATURES . . . 0005 DEGREE FILTRATION • ONE SIZE
FOR ANY CAPACITY • U.L. APPROVED 100 G.P.M. • FIVE TIMES MORE FILTERING SURFACE AREA

This handy guide shows you, instantly, the filter refills which may be used, interchangeably, in all leading filter units.

Filtration For Every Known Fluid

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—MAIL COUPON FOR FREE CROSS-REFERENCE CHART—

Dept. OB5-730 Purolator Products Co., Inc.
Rahway, New Jersey

Please send me _____ copies of your Oil Burner Filter
Element Cross-Reference Chart.

Name _____

Address _____

City _____ Zone _____ State _____

WITH THE ASSOCIATIONS

(Continued from page 108)

tries in the magazine section of the Los Angeles Times on Sunday, July 7, as another feature of the Institute's consumer education program being financed by the stamp plan. The story carried the by-line of IHACI President Robert N. Hall. Readership of the section is estimated at well over one million.

NHAW Offers Suggestions

WHOLESALERS were advised to keep a closer check on back orders and delinquent accounts by the National Heating and Airconditioning Wholesalers, in its Management Helps Bulletin. The NHAW suggested giving every salesman complete information on all back orders in his

territory. It recommended that all back orders be verified and, if found not active, should be cancelled to avoid unnecessary shipping and handling charges.

The bulletin advised checking the percentage of customers who are failing to discount invoices. If this percentage is over 25 percent, the bulletin said, it should be a warning signal. Each salesman should be advised when accounts are delinquent more than 30 days, NHAW said. They should endeavor to keep their customers from appearing on past due lists.

The bulletin also suggested a clearance sale contest among salesmen as a means of cleaning out old stock. Such a contest could be held for 60 or 90 days, the bulletin said.

Coming Events

1957

October

Oct. 7-9 — American Gas Association, annual convention. Kiel Auditorium, St. Louis, Mo. C. S. Stackpole, managing director, 420 Lexington Ave., New York 17.

November

Nov. 14-16 — American Society of Refrigerating Engineers, semiannual meeting. Shoreland Hotel, Chicago. R. C. Cross, executive secretary, 234 Fifth Ave., New York 1.

Nov. 18-20 — National Heating & Airconditioning Wholesalers, Inc., annual convention. Hotel Morrison, Chicago. W. R. Bull executive director, 1200 W. Fifth Ave., Columbus, Ohio.

Nov. 18-21 — Air-Conditioning and Refrigeration Industry, 10th exposition. International Amphitheater, Chicago. Air-Conditioning and Refrigeration Institute, 1346 Connecticut Ave., N.W., Washington 6, D.C.

Nov. 19-20 — National Warm Air Heating and Air Conditioning Association, board and committee meetings. Hotel Morrison, Chicago. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

Nov. 21-22 — National Warm Air Heating and Air Conditioning Association, annual convention. Hotel Morrison, Chicago. George Boeddener, managing director, 640 Engineers Bldg., Cleveland 14.

1958

January

Jan. 19-23 — National Association of Home Builders, annual exposition, Chicago. John M. Dickerman, executive director, 1625 L St., N.W., Washington 6, D.C.

Jan. 27-29 — American Society of Heating and Air-Conditioning Engineers, 64th annual convention, Pittsburgh, Pa. A. V. Hutchinson, executive secretary, 62 Worth St., New York 13.

February

Feb. 2-5 — New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, annual convention. Van Curler Hotel, Schenectady, N.Y. Clarence J. Meyer, executive secretary, 569 Genesee St., Buffalo 4, N.Y.

Feb. 17-20 — Seventh Annual Industrial Ventilation Conference. Kellogg Center, Michigan State University, East Lansing, Mich. Continuing Education Service, Michigan State University, East Lansing, Mich.

May

May 8-10 — Sheet Metal and Air Conditioning Contractors' National Association, Inc., annual convention. Eden Roc Hotel, Miami Beach. Joseph D. Wilder, executive secretary, 170 Division St., Elgin, Ill.

A NEW APPLICATION GUIDE

by



to help you select
Electric
Motors



This handy Guide is carefully planned to make it easy for you to select electric motors for all popular applications. Using the convenient tables inside, you simply start with the equipment or machinery you want to drive.

Then, you identify the character of the load, starting and running torques, frame type, speed, etc., to arrive at precisely the right motor for your specific application. In just a few moments you know the motor type you need, the dimensions and other pertinent data.

Because Century offers a complete line, this handy manual will guide you to the right motor for your application. Obtain your own copy of this 12-page reference manual.

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3 STRIKES
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MONCRIEF

1. COMPLETE LINE! 

2. PRODUCT EXCELLENCE! 

3. COMPETITIVE PRICE! 

YEARS AHEAD ... Gas Furnaces

YEARS AHEAD ... Oil Furnaces



Winter Air Conditioner with enameled Return Air Cabinet (an accessory). A modern Basement-Type Unit!



Oil Winter Air Conditioner. Burner and Refractory Firebox are installed and all interior wiring is done at the factory!



Gas Counterflow Unit with front panels removed. Connection of the gas line, electricity, and ducts completes the installation

Any way you call it, Moncrief gives you a straight pitch every time!

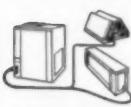
The old-line Moncrief organization of heating specialists puts the benefit of over 60 years of manufacturing experience into each and every Moncrief Furnace and Cooling Unit. And blended with this depth of experience, is a brand of sound engineering that adds every modern advancement in design and construction to any Moncrief Unit you select.

Your variety of selection is unsurpassed. Moncrief's complete line offers you every popular size of Oil, Gas or Coal Furnace — Basement, Utility, Counterflow or Horizontal, plus — 2, 3 and 5 Ton Air or Water-Cooled Summer Air Conditioners.

Every Moncrief Unit is competitive in price — so competitive that you can meet price competition, while supplying a product of excellence.

If you want to out-pitch your competition and win your innings of extra profit, see your Moncrief Wholesaler, today!

YOU HAVE THE BIG ADVANTAGE ON ANY JOB WITH MONCRIEF GAS UNITS



2, 3 or 5 Ton Air Cooled Summer A. C. Units with choice of "V" (Upflow) or "Flat" (Horizontal Flow) Cooling Coils



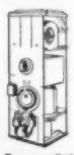
3 or 5 Ton Water Cooled Summer A. C. Units



2, 3 or 5 Ton Air or Water Cooled Gas or Oil Fired Year 'Round A. C. Units



Gas or Oil Fired Winter A. C. Units



Gas or Oil Fired Utility and Counterflow Winter A. C. Units



Gas or Oil Fired Utility Furnaces



Horizontal Furnaces
4 Gas Sizes
4 Oil Sizes



Gas Fired Unit Heaters



Gas Conversion Burners



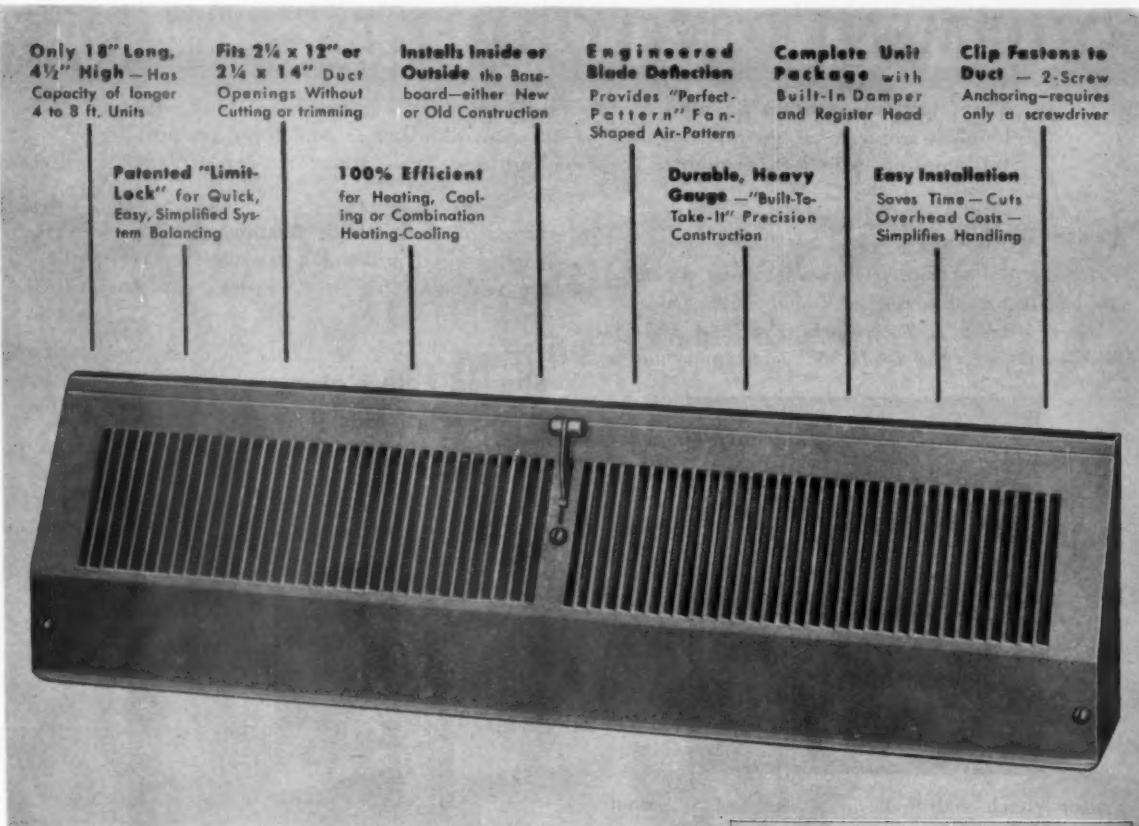
Incinerators

THE HENRY FURNACE COMPANY • Medina, Ohio

HEATING AND AIR CONDITIONING UNITS

MONCRIEF
1861-1951

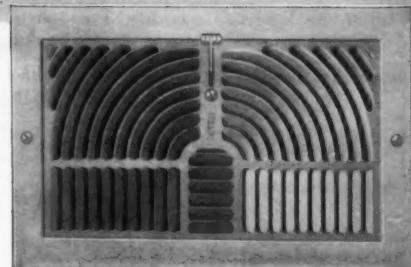
FURNACE PIPE AND FITTINGS



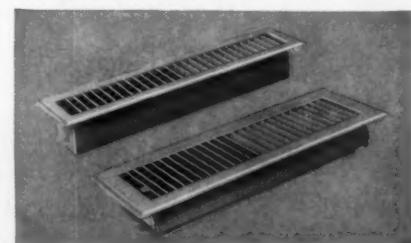
ONLY AUER "Perfusaire"
OFFERS THESE 10 ADVANTAGES

• Shown here are only a few of the many advantages Auer Registers and Grilles offer Sheet Metal Contractors...advantages that bring bigger profits, better—quicker installations—satisfied customers in greater numbers.

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Auer "Fanaire" 200 Series — for high or low wall installation, can be used as ceiling outlet. Features "Perfect-Pattern" air-flow and built-in damper.



Auer DRP Floor Perimeter Registers — with built-in damper—available in 2 1/4" x 14" and in sizes 4" and 6" wide, in lengths of 10", 12" and 14".



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"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"

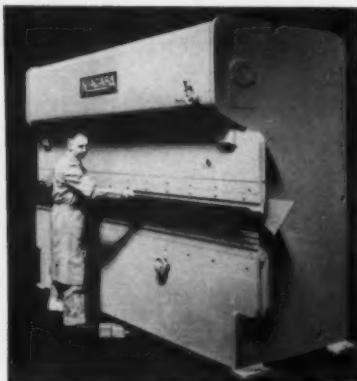
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EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information, which is available, see this month's New Literature department

Press Brake

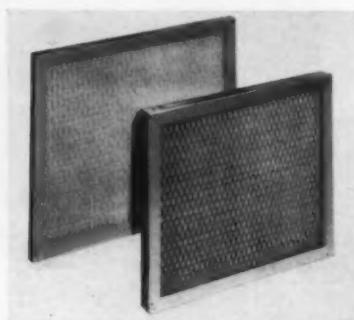
REDESIGNED LINE of press brakes featuring streamlining and increased power, in 30 and 50 ton models—*Niagara Machine & Tool Works, Dept. AA, 637-697 Northland Ave., Buffalo 11, N.Y.* Electro-pneumatic



friction clutch and brake work together to permit ram to be lowered smoothly. Portable power treadle is designed for operator's convenience. Enclosed model has inboard drive unit on one-piece frame with wraparound crown for resistance to deflection and to provide permanent alignment of bearings and ram. Throat is 50 percent deeper than predecessors. Overall bed lengths are 6 to 12 ft.

Washable Air Filter

"SKUTTLE-AIRE" permanent, washable air filter with plastic filtering material said to have built-in electrostatic properties—*Skuttle Mfg. Co., Dept. AA, Milford, Mich.*

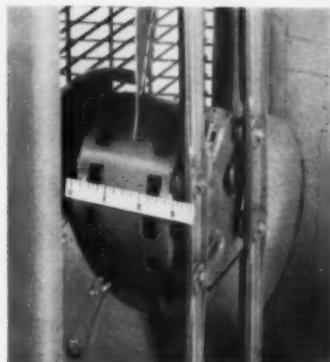


Mich. Filter is available in ten standard 1 in. sizes from 10 X 20 in. to 15 X 30 in., and in 38 half in. sizes from 6 X 20 to 14 1/8 X 23 1/4 in. Each is encased in riveted aluminum frame, and contains four

layers of thermoplastic filtering media between expanded metal grilles. Filters replace conventional filters in 1 in. or 2 in. frames; spring clips are supplied free.

Shaded-Pole Motor

"SLIM" SHADED-POLE motor which weighs 5.5 lb—one-third lighter than previous models—for blowers, fans, evaporative coolers—*General Electric Co., Specialty Motor Dept., Dept. AA, 1 River Rd. Schenectady 5, N.Y.* Unit is less than 4 in. long. Ventilation open-



ings are provided in both shell and end shields. Flat face type mounting allows close clearances for installation. Integral cast aluminum fan blades on both ends of rotor ventilate unit from both ends. Stator windings have penetrating varnish treatment. Unit is in ratings from 35 mhp to 1/10 hp in 4 and 6 pole sizes.

Vertical Cooling Tower

SERIES V VERTICAL induced draft cooling towers designed for quiet operation—*Dover Mfg. Co., Dept. AA, 3117 Weatherford Ave., Independence, Mo.* Sizes range from 5 to 100 tons; units can be used inside or outside. Air intake and outlet are on same side of tower in smaller models so unit can be placed flush to wall. All metal parts are hot dip galvanized after fabrication, the company states.

Pressure Relief Ventilator

MODEL PR LOW silhouette pressure relief ventilator in 9 throat sizes—*Loren Cook Co., Dept. AA, 227 Depot St., Berea, O.* Throat sizes range from 6 to 27 1/2 in. diameters. Unit can also be used as air intake under some conditions. Ventilator is constructed en-

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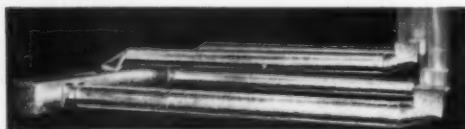
100 ROCHESTER AVE.,

KALAMAZOO, MICHIGAN

tirely of spun aluminum except for fasteners. Inverted cone in the cap guides air flow, reducing turbulence. Unit is also available with automatic louvers or motor operated louvers.

Prefabricated Duct

"SEAL-TITE" prefabricated line of die cut duct and fittings for residential heating and cooling—*William-*



son Co., Dept. AA, 3500 Madison Rd., Cincinnati 9. Designed to minimize air turbulence through streamlining, the duct is said to be suitable for high and low velocity requirements.

Vibration Mounting Pads

"SHEAR-FLEX" mounting pads designed to reduce noise and isolate equipment vibration—*Vibration Mountings, Inc., Dept. AA, 98-25 50th Ave., Corona 68, N.Y.* Pad is 18 in. square \times $\frac{3}{8}$ in. thick oil-re-



sistant synthetic material in sheet form with cross-ribbed construction which has full load range of 5 to 70 psi. Alternately raised ribs provide skid-proof surfaces; light loads ride on the high ribs, heavy loads are supported by entire ribbed surface. Sheets can be used in multiple layers at right angles.

Angle Iron Shear

MODEL 607 angle iron shears with capacities of 18 tons and $4 \times 4 \times \frac{1}{4}$ in. sizes—*W. A. Whitney Mfg. Co., Dept. AA, 636 Race St., Rockford, Ill.* Unit is 26 in. high; can be used on bench or floor. Flat stock up to $\frac{3}{8} \times 3\frac{1}{2}$ in. can also be cut. Screw-in mitre block permits cutting angles up to 45 deg; with bending dies, unit will form 90 deg right angle bends in

mild steel up to 6 in. wide \times $\frac{3}{8}$ in. thick. Shear is operated by foot treadle; cycle is constantly under operator control. Power pack is available for the unit.

Surface, Air Temperature Pyrometer

"ALNOR" TYPE 2300 B pyrometer with surface thermocouple for measuring surface temperatures as well as air temperatures—*Illinois Testing Laboratories, Inc., Dept. AA, 420 N. LaSalle St., Chicago 10.* Combination unit is designed for temperature measurement in range of 0 to 150 F; it is available in ranges of -60 to +100 F and from +60 to +220 F. Full 6 in. mirrored scale is said to provide readability to nearest $\frac{1}{2}$ deg. One-step setting of reference temperature permits higher accuracy in 0 to 150 F range, the manufacturer states.

Residential, Commercial Cooling Units

REMOTE AND SELF-CONTAINED air and water cooled summer air conditioners in 2, 3 and 5 ton capacities and self-contained, water cooled models in 5 through



15 ton capacities—*Thatcher Furnace Co., Dept. AA, Centre St., Garwood, N.J.* Remote air cooled residential units have evaporators with quick-connect valves for vertical or horizontal air flow. Water cooled residential models are self contained, feature knockout plugs which eliminate drilling for water and power connections, replaceable filter, coaxial condenser and centrifugal blower. Large water cooled models have heavy sheet fiber glass insulation panels and combination of horizontal and vertical louvers for full control of air distribution and throw.

Pre-Formed After-Filter

MODEL HP AFTER-FILTER for use with permanent filters where extra efficiency is required—*Farr Co., Dept. AA, Box 45187, Airport Sta., Los Angeles 45.* Flameproof filter consists of deep folded pleats of

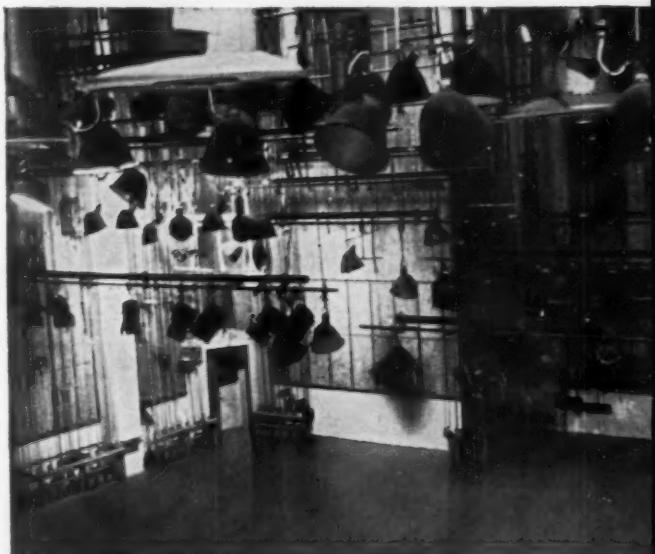
How ANEMOSTAT Air Diffusers help make movies

A carefully designed air conditioning system enables Production Center, Inc. to make movies at top speed during the hot summer months. In fact, production has been increased by three to four times, according to Center estimates.

Anemostat Air Diffusers help do this vital job. They draftlessly diffuse 20,000 cubic feet of cooled air per minute pushed by giant fans through the soundproofed ducts. The two main studios have 32 vertical ducts, ranging in diameter from 18 to 24 inches; of these, 24 are telescopic and can be raised or lowered to suit requirements. The conditioned air, efficiently distributed by Anemostat Air Diffusers, offsets the heat from the tremendous wattage of the lights needed for film-making.

Movie-viewing, as well as movie-making, is aided by Anemostat Air Diffusers. They are installed in hundreds of theatres throughout the country. Anemostat Air Diffusers also provide *true* draftless comfort and uniform air distribution in schools, hospitals, banks and practically all types of commercial and industrial buildings.

One of three completely air conditioned sound stages at Production Center, Inc. in New York City.



Note the Anemostat Air Diffusers installed on the telescopic ducts.



Joseph B. Klein, Architect
Robert Glenn, Inc., General Contractor
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For complete data, write for your copy of the new Anemostat Selection Manual No. 60 to Anemostat Corporation of America, 10 E. 39th Street, New York 16, N. Y.



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For easiest, quickest installation into oil lines at either tank or burner. Standard and King Size Models to handle every size oil heating system.

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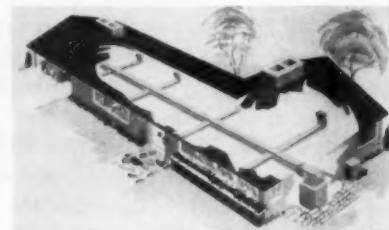
equipment developments

(Continued)

special media which is permanently attached to chipboard reinforcing panels. Pleating is said to provide effective filtering area of 9 to 1 over face area. Filter fits into special wire retainer which attaches to filter-holding frame on downstream side. Unit is collapsible.

Remote Cooling Units

SUMMER AIR conditioners in 1 1/2 and 1 3/4 hp, for use in homes with or without duct work—Williamson Co., Dept. AA, 3500 Madison Rd., Cincinnati 9. Cooling



coil is installed in duct supplying portion of house desired to be cooled (or entire house) and connected to outdoor air cooled condensing unit, or installed with its own duct system to selected area. Unit is said to cool and dehumidify up to 1000 sq ft area.

Cut-to-Fit Filter

"AMER-GLAS" filter which can be cut with scissors, snips or sharp knife to fit any window cooling unit—American Air Filter Co., Inc., Dept. AA, 355 Cen-



tral Ave., Louisville, Ky. Filter is comprised of rigid 15 x 24 in. mat of continuous strands of green glass fibers which are interwoven, bonded and compressed. No frame is needed, the company reports.

Roof Ventilator

"T-TYPE" ROOF FAN designed especially for one-story flat roof public and commercial buildings—Allen Cool-

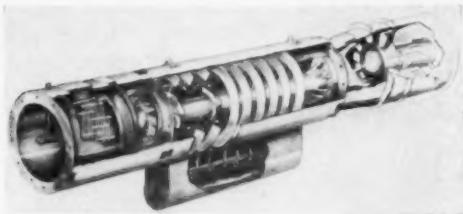
equipment developments

(Continued)

er & Ventilator, Inc., Dept. AA, Rochester, Mich. Low-velocity unit is 10 $\frac{1}{2}$ in. high; capacity is 420 cfm. Unit is available in galvanized steel or aluminum with optional automatic dampers.

Dust Collector

"MICRODYN" wet, inertial type dust collector said to have over 99 percent efficiency in collecting dust particles 5 microns or greater—*Joy Mfg. Co., Dept. AA, Oliver Bldg., Pittsburgh 22*. Featured is compact size of the unit. Dust and carrying air impinge at 4500 to 6000 lineal fpm against film of water in mixer section.



Cylindrical unit also has eliminator where air and water entrained dust pass through turning vanes. Helical motion causes a centrifugal force which separates entrained particles from air and traps them in blind louvers connected to disposal sump at bottom of unit. Cleaned air discharges through straightening vanes. Unit can be installed in existing duct work at point of use.

Long Slot Diffuser

"LINE-AIR" long slot diffuser which directs air into room at approximately 90 deg to face of the unit—*Universal Diffuser Corp., Dept. AA, 38 Marbledale Rd., Tuckahoe, N.Y.* Diffuser can be placed directly onto duct in long continuous strips without using equalizing deflector blades; air is broken into counter-current jets to prevent stratification. Cold air is tempered through entrainment, and is prevented from spilling to floor, the company states. Varying widths are available.

Fireplaces, Dampers

"PACEMAKER" FIREPLACE unit which provides complete form for any desired masonry work, and "Universal" steel fireplace damper in five models to fit all types of fireplaces—*Heatilator, Inc., Dept. AA, E. Brighton & E. Glen Ave., Syracuse 5, N.Y.* Fireplace has double walled fire box which surrounds fire; cool air is drawn into heating chamber at floor level and heated air is returned through openings higher up on the mantel. Unit includes firebox, throat, downdraft shelf, smoke dome and damper. Damper has poker

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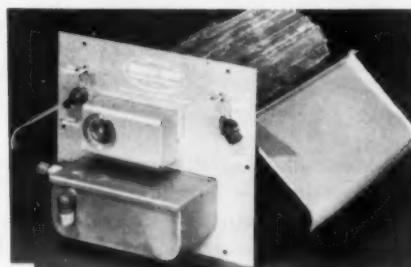
equipment developments

(Continued)

control for hand operation; it completely seals chimney when fireplace is not in use. Sloping design of fire dome is engineered to provide smoke-free operation; all four sides are sloped to permit a second backup course of masonry above top of damper. Dimensions, including 3 in. flange, range from 37 in. long, 26½ in. wide, 12 in. high with 16 in. square top opening, to 23 in. high, 57 in. long, 34½ in. wide and 24 in. square top mounting.

Plenum-Mounted Humidifier

"HUEDEE'AIRE" humidifier unit which can be attached to plenum of forced air furnace—*Walter E. Selck & Co., Dept. AA, 225 W. Hubbard St., Chicago 10.* Small synchron motor rotates screen cylinder made of



non-corroding phosphorous bronze, lifting water from pan below; as furnace blower goes on, water wheel rotates, vaporizing air currents which pass through cylinder. Unit is said to place 3-5 gal of water into the air in 24 hr.

Manual Motor Starter

MANUAL MOTOR STARTER with plug-in heater that can be inserted into motors for presses, blowers, etc. up to 1 hp—*General Electric Co., General Purpose Controls Dept., Dept. AA, 1 River Rd., Schenectady 1, N.Y.* Designed for straight-through wiring, unit has bimetal thermal mechanism which automatically opens contacts when overload occurs; plug-in heater simulates motor's temperature and causes bimetal strip to bend and trip the mechanism under continued overload conditions. Switch handle moves to mid-position, indicating that overload has occurred.

Punch Press

EIGHT TON slow speed punch press designed for hand feeding, deep drawing, continuous operation roll and dial feeding—*Kenco Mfg. Co., Dept. AA, 5211 Telegraph Rd., Los Angeles 22.* Designed to operate at 90 strokes per minute, unit is capable of producing speeds from 50 to 200 strokes per minute through adjustment to pulley wheel. Unit has two flywheels,

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*The burner
that built
an industry*





Model JD—De Luxe—Streamlined, totally enclosed. Has all Janitrol's Advancements. Turbo-Flame diffuser, Electro-Fyre pilot igniter, Uni-Thrift control, remote control panel, newest time-modulation thermostat.

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Golden Key TO PROFITS

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SALES**

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In 1926, Surface Combustion Corporation introduced the first fully automatic Janitrol gas conversion burner—and created a great new industry. Gas for heating!

Today, gas heating is a multi-billion dollar industry. And Janitrol conversion burners are the standard for completely automatic, safe, dependable performance, wherever gas heating is sold.

The burner that built an industry can build big sales and profits for you! And it's just one of seven big advantages you get with Janitrol.

Model JF—Standard—All of Janitrol's basic design exclusives, priced competitively. Solenoid valve and controls or self-generating controls.



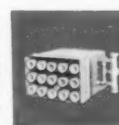
Model SC-05—High Capacity—Unusually compact, inshot type burner for larger installations. Input capacities to 750,000 Btu. Either manual or electronic controls.



Model JH—Gun Type—Ideal for fast, easy replacement of oil-fired, pressure-type burners. Adjustable blast tube, pilot lighter, thermostat, complete safety controls.



Webster—Forced Draft Burners—For conversion of high capacity boilers. Available in gas or dual-fuel types, custom-engineered for any installations. Capacities up to 50,000,000 Btu.



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Advanced Janitrol engineering—new automated production methods—volume building sales leadership—all add up to more profits on every sale. This new Janitrol pricing plan lets you move in on competition with top-quality Janitrol products at really competitive prices!

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As a Janitrol dealer qualified under this new plan, you'll keep your working capital *working*, instead of "freezing" it in inventory. You'll have the inventory you need for prompt deliveries, better service, year 'round.

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Makes Janitrol cooling and heating easily available to the six out of ten families who haven't the cash but have the credit . . . on easy installment terms. No down payment. Up to three years to pay. Finance up to \$3500. No risk or recourse to dealer, no collection problems. Eliminates red tape and delay. Keeps "hot" prospects from cooling off!

5 new local level promotions — to the rich modernization market

A high-impact, sales-producing merchandising program created by Janitrol for your needs, your market, your profit ambitions! Newspaper ad mats, radio and TV musical announcements, window and in-store displays, color-illuminated outdoor signs—all yours as a qualified Janitrol dealer. And Janitrol sets up the complete program to the last detail, saves your time for selling.

6 new builder promotion package

A complete merchandising program to help you snare your share of the new house market. Chock full of tested promotion ideas that give you a running start on competition—let you offer the builder a service that enables him to upgrade his houses with quality Janitrol equipment, appeal to more prospects, *stay competitive*!

7 new select dealer program

Today, Janitrol recognizes a new era in company-dealer relations. The days of "playing it by ear" are no more. There's a need for continuing close cooperation between both parties—an "open door" for exchange of ideas. The Janitrol Select Dealer Program makes these things possible, and gives you extra benefits besides. Business development counsel, training schools, prizes, vacations, to mention a few. Right now's the time to qualify!

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Ask your **JANITROL** representative for
the facts or **RUSH THE COUPON TO US!**
NO OBLIGATION!

Complete line of gas and oil furnaces, unit heaters, conversion burners, water cooled and air cooled summer conditioners, combination heating-cooling conditioners.

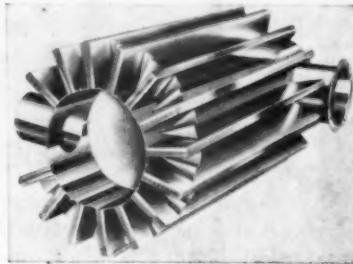
equipment developments

(Continued)

one to create driving momentum, the other to transmit full power by means of multiple high-friction, cog type dacron belts. Unit is designed for heavy duty operation; it weighs 525 lb.

Finned Heat Exchanger

HEAT EXCHANGER with turbulators which are designed to make the air scrub long, thin fins to pick up maximum amount of heat—*Lennox Industries, Inc., Dept. AA, 200 S. 12th Ave., Marshalltown, Ia.* Com-



bustion gases are forced through fins; metal liner surrounds heat exchanger to keep outer cabinet from becoming hot. Units are now installed in the company's "Starfire Stowaway" oil-fired, horizontal forced air furnaces.

Gas, Electric Water Heaters

LINE OF GAS and electric water heaters with bonded jackets, two coats of electrostatically sprayed enamel and "Ultralife" glass lining—*Patco Mfg. Co., Inc., Dept. AA, 231 N. Bread St., Philadelphia 6.* Electric units are available in tabletop models with porcelain work-space tops, and in round models. Gas units are in highboy and lowboy models with "Magic Circle" burner which applies heat to entire base.

Heating, Cooling Line

MODELS GLB-110, GLB-130, OLB-95 and OLB-112 gas and oil-fired furnaces and model BEU-3 evaporator-blower section for cooling—*Dowagiac Steel Furnace Co., Dept. AA, Beeson St., Dowagiac, Mich.* Gas-fired furnaces are in 110,000 and 130,000 Btuh input with 14 ga steel round heat exchangers, for natural, manufactured and LP gases. Belt driven blower is sized for add-on cooling. Oil-fired units are rated at 95,000 and 112,000 Btuh output at bonnet, also with 14 ga steel heat exchangers and large blowers. Evaporator-blower unit consists of horizontal flow cooling coil, large filter and 1200 cfm blower. Rated capacity is 33,800 Btuh. Units are designed for use with company's air cooled model DAC-3 condenser-compressor section designed for remote installation.

NOW there are 14

Vaporite MODELS

... a size and type Humidifier for every furnace installation.

EVERY MODEL TESTED AND PROVED

SERIES 555

Fits any straight side warm air furnace.



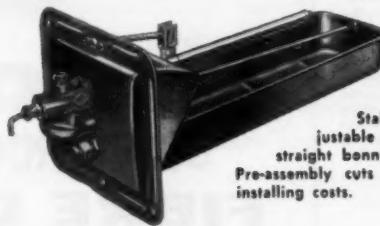
Corrosion resistant, stainless steel vapor pan 4" x 15". Completely assembled for quick and easy installation.

New copper overflow on Model 555C.

- No extras to buy
- No parts to assemble
- No extra holes to cut
- No tricky mounting

SERIES 577

Stainless steel. Adjustable to sloping or straight bonnet furnaces. Pre-assembly cuts labor time and installing costs.



EVERY MODEL WITH NEW SENSITIVE THERMO-STAT CONTROL TO ASSURE BALANCED HUMIDITY

LOW COST

FIELD-TESTED COUNTERFLOW STYLE

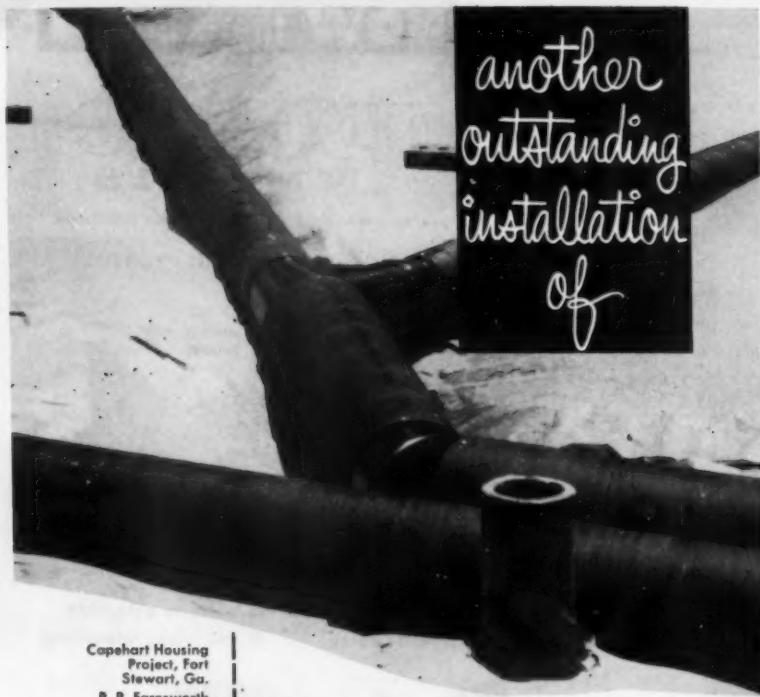
- Designed especially for basementless houses with perimeter heating.
- Complete assemblies for furnaces with concrete floor plenums or with crawl space plenums.
- Installs in minute on exterior of furnace casing. All parts furnished.



CF-500

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R. P. Farnsworth Const. Co., New Orleans, Gen. Contractor.
Air Control Engineering Company, Kansas City, Mo., Heating Contractor.

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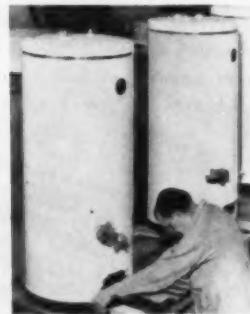
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equipment developments (Continued)

Water Heater

FIFTY GAL automatic gas-fired water heater to replace previous 45 gal model—John Wood Co., Heater and Tank Div., Dept. AA, 100 Wash-



ington St., Conshohocken, Pa. Unit is available in 15,000, 30,000, 40,000 and 50,000 Btu inputs, with galvanized or glass lined tanks. Diameters are less than 23 in.; height is less than predecessor.

Self-Contained Units

"COOLING CONDITIONAIRE" line of self-contained summer air conditioners rated at 2 hp (20,050 Btuh) and 3½ hp (40,000 Btuh)—Delco Appliance Div., General Motors Corp., Dept. AA, 391 Lyell Ave., Rochester 6, N. Y. Air cooled units are designed for installation in gables, hip roofs, crawl spaces or basements. Featured are twin cylinder compressor, copper tube and aluminum fin cooling coil, capillary tube expansion device, axial fan.

Portable Saws, Drills

MODEL 531 multiple purpose saw and Model 149, 3½ in. electric drill—Porter-Cable Machine Co., Dept. AA, 112 Exchange St., Syracuse 8, N. Y. Selection of 8 orbital action blades for saw permit cutting wood, aluminum, ferrous and non-ferrous sheets or tubing, plaster, wall board, etc. Blade arrangement permits close angulation and plunge cuts without starting holes. Saw weighs 6½ lb; motor cuts at 4250 rpm. Drill can be



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Yes! I'd like to see how to get more business by knowing in advance who's going to build, what, when, where.

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I'd like to see some Dodge Reports, and I'd like a copy of your booklet that tells how to use this accurate, daily, up-to-the-minute construction news service.

I understand that I can pick just the area in the 37 Eastern States and the type of construction activity that interests me. Also, that I won't have to wade through mounds of data to find the information I need.

I'm interested in General Building House Construction Engineering (Heavy Construction)

In the Following Area: _____

NAME: _____

ADDRESS: _____

CITY: _____ ZONE: _____ STATE: _____



NOW!
clean furnaces
faster, without risk
of Bag "Blow-out!"

\$99.50

NEW

SOOTMASTER

Furnace Cleaner #521
WITH DISPOSABLE FILTER

There's no outside bag to worry about...no bag that you have to empty...with NEW SOOTMASTER. This new kind of furnace cleaner has a super-efficient disposable filter with throwaway bag inside the tank. Double filtering action guarantees cleaner cleaning. Light weight. Easy rolling. Preferred by professionals.

G.E. & PREMIER OWNERS!
Replace outside bag with
SOOTMASTER Filter Unit
THROWAWAY BAG! **CONVERT**
to this...

ELIMINATE OUTSIDE BAG

MODEL FU-1A

Same Filter Unit as SOOTMASTER Cleaner especially designed to fit in the tank of G.E. and Premier Furnace Cleaners. Eliminates outside bag. Provides safe, sanitary way to dispose of soot and dirt. Filter Unit complete with 10 throwaway bags and quick-release tie cord.....\$17.50

Model UC-1A
Brand new suction motor unit plus FU-1A disposable filter unit assures quiet operation. Fits G.E. and Premier Cleaners. Big economy replacement! Guaranteed.....\$54.50

Dust bags and hoses for all industrial models.

Order from your jobber. Jobber inquiries invited.

Distributed in Canada by Imperial Refractories



MASTER-CRAFT
SUPPLY CO., INC.
W. HAVERSTRAW, NEW YORK

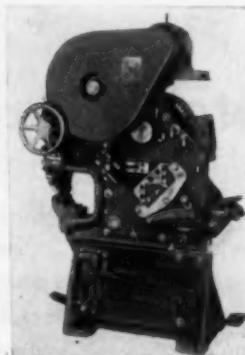
equipment developments

(Continued)

used for wood or metal; motor has no-load speed of 1000 rpm. Capacity is $\frac{3}{8}$ in. in steel, $\frac{3}{4}$ in. in wood. Geared chuck has three jaws. Drill weighs 3 lb, 8 oz.

Shear, Punch, Coper

COMBINATION SHEAR, punch and coper for sheet metal fabrication—*Joseph T. Ryerson & Son, Inc., Machinery Div., Dept. AA, Box 8000-A,*



Chicago 80. Unit punches up to $\frac{13}{16}$ in. dia holes in $\frac{3}{8}$ in. steel plate and up to $\frac{11}{16}$ in. holes in $\frac{1}{2}$ in. steel plate. It shears up to $4 \times 4 \times \frac{1}{4}$ in. steel angles and $\frac{3}{8}$ in. steel plate. Unit also notches and copes.

Exhaust Fan

VENTILATOR DESIGNED for use with built-in ovens—*Trade-Wind Motor-fans, Inc., Dept. AA, 7755 Paramount Blvd., Rivera, Calif.* Unit has 300 cfm twin centrifugal blowers and choice of two hood styles in 24, 27, 33 and 45 in. lengths. Hoods are antique copper or stainless steel and copper. Snap-in, cleanable filter is located under hood. Inlet duct carries contaminated air from hood to ventilator for exhaust. Thermostat control operates ventilator automatically.

Electrostatic Filter

L TYPE dust magnet electrostatic air filter bound in flexible plastic for

When that 'tough' customer says...



Just tell him...



Sure, Reznor unit heaters may be priced higher than some inferior units, though not higher than most. But Reznor heaters always cost less in the

long run because they last much, much longer. Because Reznor makes many more gas unit heaters than any other manufacturer, the economies of mass production allow Reznor to build a better unit, dollar for dollar, than other manufacturers can afford to offer. Reznor doesn't have to skimp on materials or workmanship in order to maintain a competitive price. Reznor heaters are engineered and built for reliable performance and long life and priced so that you can sell them easily . . . and profitably. And you profit from Reznor quality, too . . . in fewer costly service calls and more happy customers.

For more information just give your nearby Reznor distributor a call.

REZNOR
WORLD'S LARGEST-SELLING DIRECT-FIRED
UNIT HEATERS

Reznor Manufacturing Co., 8 Union St., Mercer, Pa.

193 SOURCES OF PROFIT!



with the **AMERICAN-Standard**
Air Conditioning Division
Complete Year 'Round Line

123 WARM AIR HEATING UNITS

—all types, all fuels, all sizes! This famous line meets the requirements of any job, any application, with exactly the right unit for easiest, most *profitable* installation. Immediate delivery from your *local* distributor.

+42 SUMMER AIR CONDITIONERS

Build your *profits* and reputation with American-Standard—the most complete line of residential and light commercial air conditioning equipment available. Famous brand name and competitive prices make sales easy.

+28 YEAR 'ROUND AIR CONDITIONERS

Ideal for new homes and for replacement of worn-out furnaces. Sell unit either with slide-in refrigerant section—or without, to insure yourself additional profits when your customer is ready for Summer Air Conditioning.

+15 BASIC SALES ADVANTAGES

- 1 Complete Line—Heating and Air Conditioning
- 2 Famous Brand Name
- 3 Competitive Prices—Superior Quality
- 4 Factory Tested Units
- 5 Complete Stock at Local Distributors

- 6 National Advertising Support
- 7 Liberal Co-Op Advertising Plan
- 8 Outstanding Sales Promotion Materials
- 9 Complete Product Literature
- 10 Strong Dealer Identification Program
- 11 Phone Book Trade Mark Identification

*No other Manufacturer
offers all these!*

- 12 Consumer Time Payment Plan
- 13 Sales and Technical Help From Field Experts
- 14 Dealer Training Schools
- 15 Financial Cooperation From Your Local Distributor

Quality Protects Your Investment—AMERICAN-Standard Quality Is Available At No Extra Cost

*For full details
contact your
distributor*

AMERICAN-Standard

AIR CONDITIONING DIVISION
ELYRIA, OHIO



equipment developments

(Continued)

shipping or curved installation—*Stoddard Industries, Inc., Dept. AA, 1545 Kingsbury St., Chicago 22.*

Made to measure to any size or shape, the $\frac{1}{4}$ in. thick filters are designed to replace $\frac{1}{2}$ to 2 in. thick filters. Units wash clean under faucet. Unit is made of layers of woven plastic fabric with inherent electrostatic charge which is maintained by air movement. Particles as small as 0.4 microns are trapped, according to the company.

Metal Fireplaces

“THULMAN” all-metal fireplaces with 30 and 36 in. front openings—*Majestic Co., Inc., Dept. AA, 733 Erie St., Huntington, Ind.* Featured are screen, starter flue pipes, optional surround. Both openings are 18 in. deep; larger model is 24 in. high, smaller is 22 in. Cast iron fire chamber liners are installed at factory. Front of opening and fire chamber

are finished in black. Both models have 8 in. dia flue. Marble surrounds $\frac{7}{8}$ in. thick are available.

Gas-Fired Furnace

LINE OF GAS-FIRED furnaces in capacities of 60,000 to 120,000 Btu/h, with bottom warm air discharge—*General Gas Light Co., Dept. AA, 202 N. Park St., Kalamazoo 11F, Mich.* Bottom discharge permits unit to be in-



stalled for up, down, or horizontal delivery. Units have welded steel heat exchangers which are ribbed to pre-

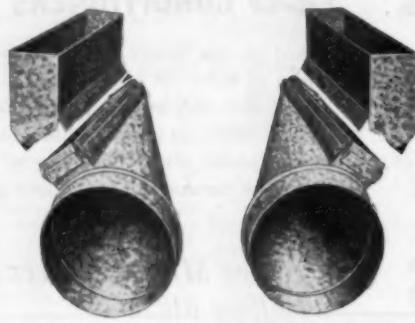
vent rumble and expansion noises. Alloy steel burners, non-clog stainless steel pilot, blower and filter are standard equipment.

Turning Vise

“VERSA-VISE” vise which turns and locks in any position—*Will-Burt Co., Dept. AA, Orrville, O.* Unit is redesigned and heavier version of previous models, with smooth jaws or removable serrated jaws, according to the manufacturer.

Service Truck Body

SERVICE UTILITY body for trucks, featuring “saddle bag” compartments in $7\frac{1}{2}$ ft pickup box—*Dodge Div., Chrysler Corp., Dept. AA, 21500 Mound Rd., Detroit 31, Mich.* Sliding roof protects cargo. Ladder and rack are available. Unit is available for D100 and D200 pickups with 116 in. wheelbase. Each side has vertical and horizontal compartments, $41 \times 19 \times 11$, and $69 \times 20 \times 11$ in., respectively.



Register Boot
Left Hand



Register Boot
Right Hand



Register Boot Center
(Extension cut)



Stack Boot
(No extension)

NEW EXCELSIOR 4-in-1 Fitting

NO. R-L 750R REGISTER END BOOT

This new EXCELSIOR Register End Boot can be used in any of the four types of applications shown to the left providing flush-wall installation — only one stock item to meet all four purposes. Fitting is shipped in two pieces with Click-Lock Extension Connection permitting easy assembly as Left, Right, or Center End Boot or a Stack Boot.

Watch Excelsior for other new, time-saving items to be announced soon.

NEW CATALOG NO. 10A

New catalog giving details and prices on EXCELSIOR complete line of Standardized Pipe, Duct, and Fittings sent upon request.

THE EXCELSIOR STEEL FURNACE CO.

546 W. Washington Blvd.

FRanklin 2-8145

Chicago 6, Illinois

DIVISIONS

EXCELSIOR HEATER & SUPPLY DIVISION

The Excelsior Steel Furnace Company
879 Hersey Ave., St. Paul 14, Minn.
Telephone: MI dway 6-7255

EXCELSIOR HEATING SUPPLY DIVISION

The Excelsior Steel Furnace Company
2 East 3rd St., Kansas City 6, Mo.
Telephone: VIctor 2-3715



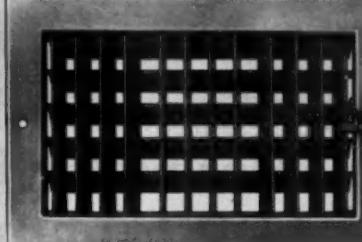
All
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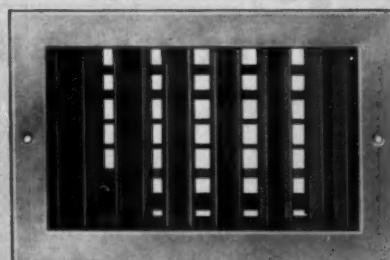
Write for Waterloo
 Catalog, containing
 complete data.

WATERLOO
 REGISTER CO., INC.
 WATERLOO, IOWA

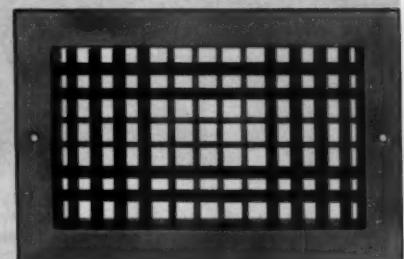
REGISTERS • GRILLES • VOLUME CONTROL DAMPERS • DOOR VENTILATORS



Style 1VMH Supply Register
 One set adjustable vertical louvers with multi-shutter damper, horizontal blades.



Style 2VO Supply Register
 Two sets of adjustable louvers, front vertical, second horizontal with opposed damper, vertical blades.



Style 2V Supply Grille
 Two sets of adjustable louvers, front vertical, rear horizontal.

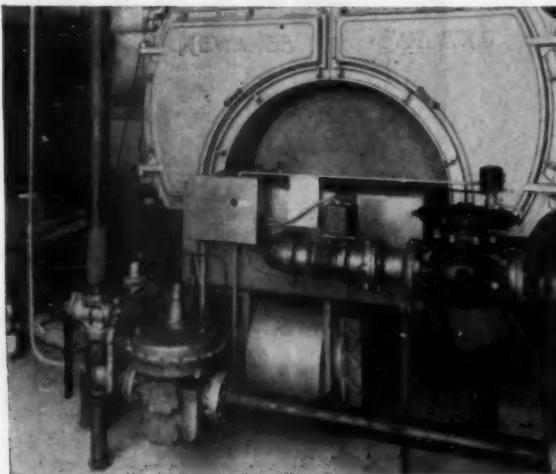


Style 3H Return Air Grille
 One set of horizontal fins fixed down at 45° deflection . . . Also available in 0° deflection.

WR-101



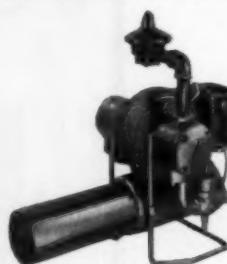
Hot water for 1,000 cabanas heated at less-than-expected cost by **Lo-BLAST** **POWER GAS BURNER**



At beautiful Malibu Beach Club, Lido Beach, Long Island, N. Y., the hot water demand of these cabanas creates an exceptionally heavy load. 1000 showers and the kitchen facilities of two restaurants are amply and economically supplied by a 450 horsepower Scotch Marine boiler, automatically gas-fired by a 20,000,000 BTU-Lo-BLAST Burner. Manufactured gas is furnished by the Long Island Lighting Company, which reports that *operating cost is less than estimated at the time of installation!*

Lo-BLAST Power Burners use an extremely quiet, low-speed blower to provide perfectly controlled primary and secondary air...operation is always independent of natural draft. These burners eliminate the need for high chimneys—inshot design reduces maintenance cost. All units are completely assembled and tested on gas before shipment.

Lo-BLAST Burners average 10% less in operating cost!



Capacities 75,000 — 20,000,000
BTU/hr. input.

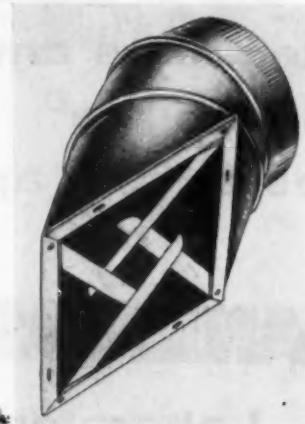
**MID-CONTINENT
METAL PRODUCTS CO.**
1960 N. Clybourn Ave., Chicago 14, Ill.

equipment developments

(Continued)

Top or Side Takeoffs

"CLIX-ON" adjustable top or side takeoffs for duct or plenum—*Standard Furnace Supply Co., Ltd., Dept. AA, 714 S. 72nd St., P.O. Box 1312, Omaha, Nebr.*



Made in 5 through 7 in. collar sizes, units feature smooth entrance area and sweep flow contour designed for unrestricted air movement, the company states.

Air Conditioner Hoist

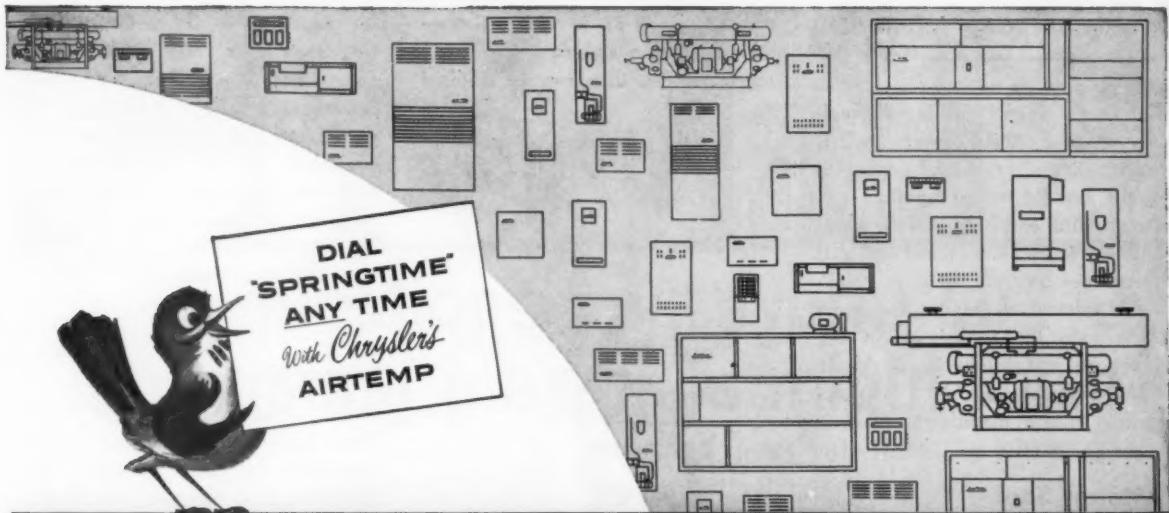
"HOIST-IT" portable outdoor hoist for lifting attic air conditioners—*Hastings Air Control, Inc., Dept. AA, 3215 Leavenworth St., Omaha 5.* Setting up hoist and lifting unit takes two men about 45 minutes, the



company reports. Hoist can also be used indoors for raising units up to 3000 lb to ceilings as high as 24 ft; for lifting window units into transoms and for raising suspended units in basements. Each of two cable hoists is independent unit.

Two-Speed Drill

TWO-SPEED, $\frac{3}{8}$ in. electric drill which can be switched from 3000 rpm to 1000 rpm—*Wen Products, Inc., Dept. AA, 5808 Northwest Highway, Chicago 31.*



CHRYSLER'S *Airtemp* FURNACES

sell easier install easier

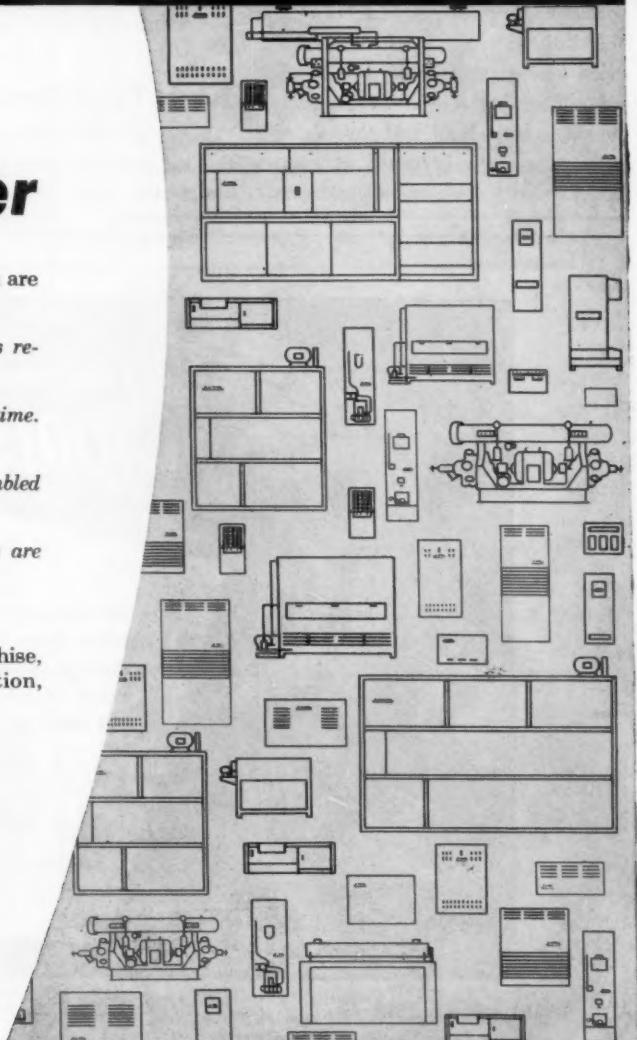
You sell faster and make more money when you are a Chrysler Airtemp dealer. Here's why!

- Your customer knows the Chrysler name...has respect for Chrysler engineering.
- Customer can add matched Airtemp cooling any time. Furnace has an extra-capacity blower.
- Furnace is lightweight, compact...factory-assembled and tested for faster installation.
- Furnace is unusually trouble-free. Complaints are few...service calls don't eat up your profits.

For all the facts on an Airtemp heating franchise, write Airtemp Division, Chrysler Corporation, Dayton 1, Ohio.



**HEATING AND AIR CONDITIONING
FOR A ROOM, A HOME, A BUSINESS,
AN AUTOMOBILE**



equipment developments

(Continued)

High speed is for drilling through steel up to 5/32 in.; wood to 3/8 in.; aluminum, brass and copper to 1/4 in.; and for rotary sanding, sawing, grinding and buffing. Low speed is best for heavier materials and masonry or concrete to 1/2 in. thickness. Designed to deliver maximum torque under load, unit is 1 1/4 X 4 3/4 X 2 1/2 in., and weighs 4 1/2 lb. Motor is 115-v universal a-c/d-c 2 amp, according to the manufacturer.

Fastener Seal

"NYLTITE STAPS" fastener seal for weatherproof fastening—*Parker-Kalon Div., General American Transportation Corp., Dept. AA, Clifton, N.J.* Unit consists of self-conforming nylon washer pre-assembled to standard self-tapping screw; washer compresses against head and threads of fastener as screw is turned in, completely sealing opening against mois-

ture or rain. Unit is said to deform with expansion and contraction and other stresses, then recover original



shape without breaking seal. Units are designed for corrugated roofing and fabricated metal walls.

Turret Punch Press

"DI-ACRO" HAND OPERATED 12 station turret punch press which pierces and blanks holes from 1/16 to 2 in.

in sheet metal—*O'Neil-Irwin Mfg. Co., Dept. AA, 501 Eighth Ave., Lake City, Minn.* Four ton model has micrometer type back and side gages; stripper plates are standard equipment for each of the 12 stations. Depth of throat is 12 in.; overall height is 25 in.; width is 30 in.; depth is 20 in. Selection of punches and dies is available. Six different clearances are available.

Water Heaters

"REX" HEAVY-DUTY automatic gas water heaters in 50, 60 and 75 gal capacities—*Cleveland Heater Co., Dept. AA, 2310 Superior Ave., N.E., Cleveland 14.* Units deliver 54.6, 63.0, and 68.9 gph at 100 F rise, and have Btu inputs of 65,000, 75,000 and 82,000 respectively. All models have gas pressure regulators. Burners are cast iron bunsen type with 260 raised ports. Inner liner is aluminized steel. Plastic dip tube is 1 1/8 in. in diameter; 2 in. plug permits cleaning sediment in bottom. Magnesium anode is cast alloy.

You need **NO SPECIAL TOOLS...** to make them fit!

Dieckmann Elbows are made from one piece terne coated, iron and steel, hot dipped galvanized after formation. Also made of all other standard metals in a full range of sizes and angles.

Ask for illustrated catalog #47 and other literature.

The Ferdinand Dieckmann Co.
1300 Harrison Avenue
Cincinnati 22, Ohio

CRANE

5 questions your warm air remodeling prospects might raise

(Sunnyland gives you the easy answers!)



1 "With a new Crane Sunnyland furnace can I use any type of fuel?" You certainly can. There are Sunnyland furnaces for every fuel—all gases, fuel oil and coal. (They use less, too.)



2 "Can we squeeze a furnace in this corner of the basement?" There's no squeezing necessary! All Crane Sunnyland hi-boy, counterflow, and basement furnaces are compact, take up little floor space. Yet they produce plenty of warm air.



3 "I've heard about the new horizontal model furnaces. Could you install one here?" Sure. Sunnyland horizontal models are designed for crawl spaces and attics. Or they can be suspended from your basement or utility room ceiling.



4 "We can't quite swing air conditioning now. Suppose we want to add it later?" No problem. Simply add a Sunnyland cooling coil with remote condensing unit to your Sunnyland furnace. (Or to your present forced warm air furnace.)



5 "I see you sell Crane Sunnyland. Is that the Crane that's so famous for quality plumbing and heating?" The very same. The company that has meant dependability to so many people for over 100 years.

Why not find out the many ways Crane helps you sell the big remodeling market? Get in touch with your Crane Branch or Crane Wholesaler now.

CRANE CO.

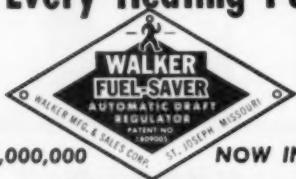
836 South Michigan Avenue,
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VALVES • FITTINGS • PIPE • PLUMBING
KITCHENS • HEATING
AIR CONDITIONING



there's a...

WALKER DRAFT CONTROL for Every Heating Purpose



OVER 25,000,000

NOW IN USE

WALKER Shur-Flo DRAFT INDUCER

Saves YOU MONEY! Saves TIME!
COMBINES 2 DRAFT JOBS IN 1!

Eliminates need for two installations
by combining fan operated draft inducer
with draft regulator control.
Simple to install at any angle.

FAMOUS DRAFT CONTROLS BY WALKER
PRECISION ENGINEERED FOR QUALITY

TYPE Z

Dial and Pointer adjustment—simplest
design, easiest to adjust, maintains
positive and accurate control under
widest variation of stack draft.



TYPE 34B

Universally accepted for space heaters,
water heaters, trailer stoves, and all
budget-priced heating equipment



TYPE BB

Extra rugged, heavy construction designed
for commercial and industrial use. Actual
installation proved it cut fuel costs in only
three months, enough to more than
pay total original investment cost.



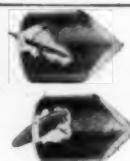
ROYAL PURPLE MODEL

Walker's finest quality automatic draft
regulator with all moving parts
completely shielded from corrosion.
Guaranteed performance.



WALKER BBG DOUBLE SWING CONTROL

Walker's BBG Double Swing Control
regulates updraft, dissipates downdraft in
gas-fired and combination oil-gas
fired equipment.



VENTURI TOP FOR CHIMNEY CAPS

Unique Venturi design assures positive
elimination of downdraft at chimney top
... for oil, gas or coal fired chimney
vents. Patented pivots, balanced
construction, guarantee maintenance—
free long life.



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- Walker SHUR-FLO Draft Inducer.
- Royal Purple-Deluxe Controls for Deluxe Equipment.
- Venturi Top Chimney Cap.

NAME _____

ADDRESS _____

CITY _____ STATE _____

equipment developments

(Continued)

Self Contained Units

RTA 36, 60, and 90, 3, 5 and 7½ ton (respectively) air cooled self contained cooling units—Betz Div., Bohn Aluminum & Brass Corp., Dept. AA, Danville,



Ill. Units have cooling coils set at angle to expose maximum surface to air stream and provide longer contact of air with cooling coil. Only one opening is required in ceiling. Combination supply and return grille is used. Casing is insulated aluminum.

Residential-Commercial Oil Burners

THREE OIL BURNERS designed for installation in large homes, public buildings and small commercial establishments—The Carlin Co., Dept. AA, 912 Silas Deane Highway, Wethersfield 9, Conn. Models 500S-35, 700S-35 and 650 burners have firing ranges respectively of 3.0 to 4.5 gph, 3.5 to 7.0 gph, and 3.5 to 6.5 gph. Models 500S-35 and 600-S 35 feature "shell" head while 650 has standard combustion head. All models burn no. 2 fuel oil.

Oil Burner Fuel Filter

LIGHTWEIGHT ALUMINUM oil burner fuel filter with "Porosite" pleated filtrant designed to retain micron sized dirt and grit particles while maintaining full 120 gph gravity flow—WIX Corp., Dept. AA, Gastonia, N.C. Unit is designed for high or low pressure systems; gravity flow capacity is 120 gph. Filter is constructed of rustproof, lightweight aluminum, and consists of a fuel line adapter and "spin-on, spin-off" cartridge. Filter service consists of removing and discarding the old cartridge and replacing it with new model OBC-100 cartridge. Filter unit is designated as model OBF-100, the company states.

Gas-Fired Furnace

GH SERIES horizontal gas-fired furnaces in 80,000 through 120,000 Btu models—J. L. Gillen Co., Dept. AA, 12202 Wormer Ave., Detroit 39. Heavy gage heat exchanger is sectional type with die-formed and electrically welded sections. Burner is cast iron, drilled port type. Units are designed for attic, crawl space or suspended installation, the company states.



R. F. Gang, General Sales Manager; M. I. Levy, General Manager; E. J. Anderson, Advertising Manager; Viking Air Products

This Viking® "5600" will bring you at least \$1000 more this year, because we've just added "Ingredient X"



**I'm Dick Gang,
Sales Manager
of Viking Air
Products.**

I've had personal talks with many of you before about our Viking "5600" Furnace Humidifier with the guaranteed glass pan. Now I want to tell you about "Ingredient X" — the secret of our Fall Promotion.

"Ingredient X" is a Tool . . .
one that is 100% practical. It's like saving a dollar a day — a practice that can have spectacular results if you keep at it.

In the Case of "Ingredient X" the Results are Faster and More Profitable.

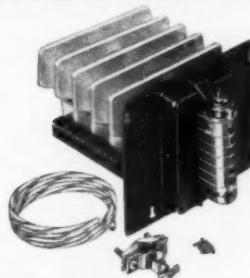
We have the records of many contractors who have tried "Ingredient X" with resulting increases of up to \$3,000 in volume — up to \$1,000 in profit.

Best of All, "Ingredient X" is . . .
a tool that takes no time on the part of the person using it, nor any extra effort — and it costs you nothing.

How Can You Find Out What "Ingredient X" is?

Your jobber has the entire story. He will provide you with "Ingredient X" plus an amazing money saving offer. See him now.

The VIKING "5600" HUMIDIFIER



**Easiest, Fastest Installation
Lifetime-Guaranteed Glass Pan
Factory-Assembled
Cake-Resistant Thirs-Tee Plates
10 Feet of Miracle Polyethylene Tubing**

Viking®
AIR PRODUCTS

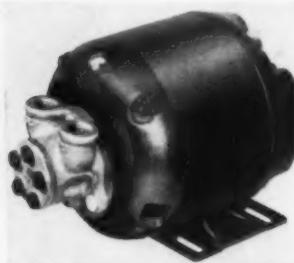
5601 Walworth Ave., Cleveland 2, Ohio

equipment developments

(Continued)

Pump-Drive Motors

COMBINATION pump-and-driving motor units for use where horizontal furnaces are installed in factories,



warehouses, etc.—*Tuthill Pump Co., Dept. AA, 939 E. 95th St., Chicago 19.* Pump is mounted on motor, eliminating need for coupling, adapter or base, saving space, reducing weight and cutting assembly time, the manufacturer states. Units range in flow capacity from 20 to 300 gph and in pressures up to 1500 psi. Combinations include $\frac{1}{4}$ hp and larger motors.

Smoke Generator

“SMOKEY” POCKET-SIZE smoke generator and director which uses cigarette as source of fuel—*Design Engineers, Dept. AA, 214 S. Church St., Rockford, Ill.* Designed for visually checking air flow in heating and cooling installations, unit is of double-wall construction which labyrinth intake air and cools unit.



Literature Rack

“BIZ-RAK” anodized aluminum rack for manufacturers’ literature for of-

ice or for display—*The Rak Makers, Dept. AA, P.O. Box 1616, New London, Conn.* Unit has 5 pockets: 3 for $8\frac{1}{2} \times 11$ in. catalogs and publications, top pocket for smaller, bottom for larger pieces. Wall and floor models are available; all are $4\frac{1}{2}$ in. high.

Window Cooling Unit

MODEL 712S 1 hp, $7\frac{1}{2}$ amp window unit which runs on 115-v current—*Feeders-Quigan Corp., Dept. AA, 57 Tonawanda St., Buffalo 7, N.Y.* Unit is rated at 9000 Btu, has 99.3 percent power factor, according to the company. Unit can be plugged into available electrical supply.

Flush-Cut Saw

“MODEL 250 Super Saw” with $\frac{1}{2}$ hp motor, designed for cutting flush with any surface in any position—*R.C.S. Tool Corp., Dept. AA, P. O. Box 661 Bloomington, Ill.* Reciprocating saw delivers 2500 strokes per minute. Variety of blades are available.



STANDARD BRAKES

Capacities up to 12-gauge sheet metal and bending lengths up to 12 feet.



FOLDER BRAKES

The simplicity and ease of operation make this a desirable machine for light sheet metal work. Seams and locks can be made efficiently. Capacity up to 20-gauge in three sizes of bending lengths of 36, 42, and 48 inches. Foot treadle clamp.



PORTABLE BRAKES

Set up shop right on the job. Capacity 20-gauge sheet metal in two sizes with bending lengths of 49 and 61 inches.

Hand Operated BENDING BRAKES

One Man Operation • Quick Adjustment • Rugged Construction



Descriptive Literature on Request.

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SIMPLE AS A-B-C.

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 B CUSTOMER APPEAL & ACCEPTANCE
 C QUALITY EQUIPMENT { AIR CONDITIONERS
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MOR-SUN
MEANS

MORE
SALES MORE
PROFITS
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MOR-SUN OFFERS

you one of the soundest business opportunities open to heating distributors and dealers. It is backed by national advertising, a good co-operative advertising plan and sales promotional helps of all types. For all the details — call, wire or write.

When you're a Mor-Sun Merchandiser, you can offer a furnace or air conditioner for every home heating or cooling requirement. Closing every sale is easier because the equipment spells "quality" in styling, engineering and construction. And, *most important*, the price is right ... right for every customer, builder or home owner ... right for you to make a healthy profit.

NEW MOR-SUN LO-BOYS FOR HIGHER SALES VOLUME ...another example of the "MORE" you get with MOR-SUN

4 MODELS

MODERN STYLING

THERMO - DYNAMIC HEAT EXCHANGER

- ... gas and oil
- ... from 95,000 BTU/HR to 150,000 BTU/HR input for gas
- ... from 84,000 BTU/HR to 123,000 BTU/HR output for oil

- ... a sturdy, attractive cabinet
- ... finished in two-tone green
- ... new copper trim

- ... for fastest heat transfer
- ... top operating efficiency and economy
- ... guaranteed in writing for 10 years

You get so much more with

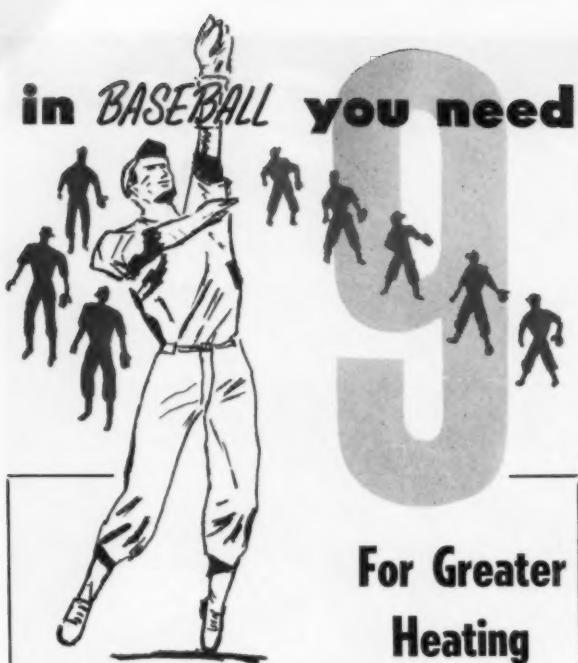
MOR-SUN

HEATING AND AIR CONDITIONING

Mor-Sun Division, MORRISON STEEL PRODUCTS, INC., 609 Amherst St., Buffalo 7, N.Y.

In Canada, Mor-Sun Limited, 62 Laurel St. East, Waterloo, Ontario.





For Greater Heating

and Air Conditioning Sales...

it takes a complete Line-Up, too!

You need a COMPLETE line-up of heating and air conditioning equipment to meet ALL your customer requirements. You get this complete line-up . . . and your assurance of quality products and continuing customer satisfaction, from Anchor.

Buy ALL your heating and air conditioning equipment from one source . . . America's Oldest Manufacturer of a complete line of heating and air conditioning equipment . . . Anchor.

Pictured at right: Anchor's new Duo-Bilt FIRE CHIEF Winter Air Conditioner. Write for catalog sheet and specifications.



ANCHOR

since 1865

DIVISION OF STRATTON & TERSTEGGE CO., INC.
P. O. Box 311

New Albany, Ind.

new literature . . .

Utility Blowers

FIFTY-TWO PAGE illustrated catalog (bulletin 8314) describes "Sirocco" blowers. Selection factors such as space volume, quantity of fresh air required, altitude and temperature correction, outlet velocity, duct size, static pressure and tip speed are discussed. A sample selection problem is given to show how the various factors are applied. Capacity tables give motor hp, fan speed range and delivery for a variety of static pressures. Installation drawings present dimensional data. Also included is a typical specifications writeup—*American Blower Div. of American-Standard, Dept. AA, Detroit 32*.

Standard for Oil Burning Equipment

NFPA PAMPHLET No. 31, "Standard for the Installation of Oil Burning Equipment," incorporates a number of revisions made since publication of the 1956 edition. One of the more important changes is that permitting unenclosed inside tanks up to 550 gal individual capacity. Requirements for heat reclaimers and downflow furnaces have also been revised. The standard is written in such a manner as to make it adaptable for use in either the United States or Canada, according to NFPA. Approximate or accepted imperial gallon equivalents are given along with other Canadian standards comparable to the respective U.S. standards. Copies are priced at 60 cents—*National Fire Protection Association International, 60 Batterymarch St., Boston 10*.

Blower Control System

CONSUMER LITERATURE describes "Palm Beach Comfort Control System" designed to provide even heat distribution and reduce fuel costs. A keyed diagram explains how the system works. According to the company it is adaptable to all forced air heating systems employing a belt driven blower. Also available are newspaper ad mats illustrating how undesirable conditions such as "layer cake" heating can be overcome through use of the control system—*National Modulation Co., Dept. AA, 2720 No. Highway 61, St. Paul 9, Minn.*

Humidifier for Heating Systems

"CLIMATIZER" ELECTRIC HUMIDIFIERS for use in warm air heating systems are described in catalog No. 1. Two styles are available — model 250, wired to operate when furnace blower comes on, and model 251, wired for continuous operation. Features listed by the manufacturer include compact size (9½ in. long by 5½ in. wide by 2½ in. deep), cast aluminum con-

Permanent masonry Van-Packer Chimney gives high draft —won't corrode

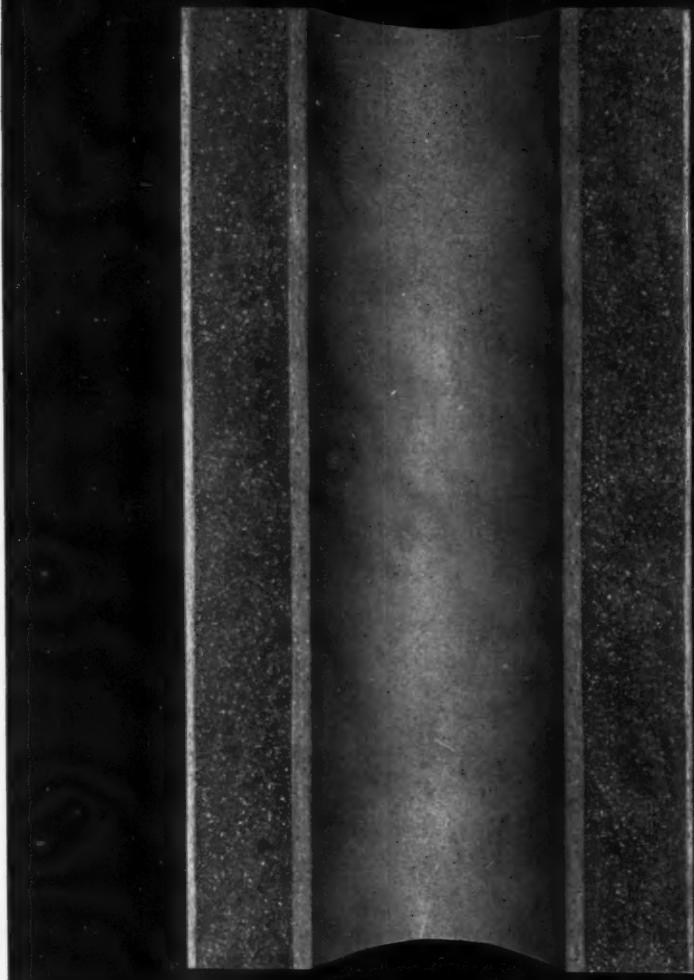
When you install a Van-Packer Chimney, you can be sure you're putting in a safe, permanent flue. Van-Packer's genuine $\frac{5}{8}$ " fire clay tile liner is acidproof—can not corrode under the destructive attacks of flue gas acids.

Van-Packer's tile liner withstands temperatures over 2100°F. without deteriorating—safe even for incinerators. It is not subject to denting, flaking or similar damage that would affect the operation of the chimney.

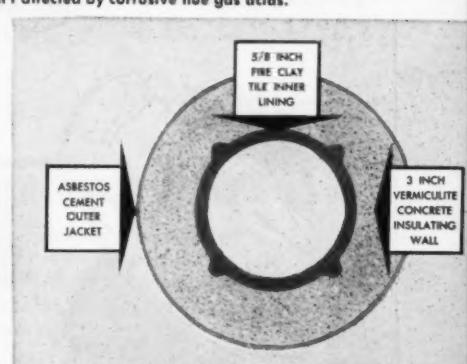
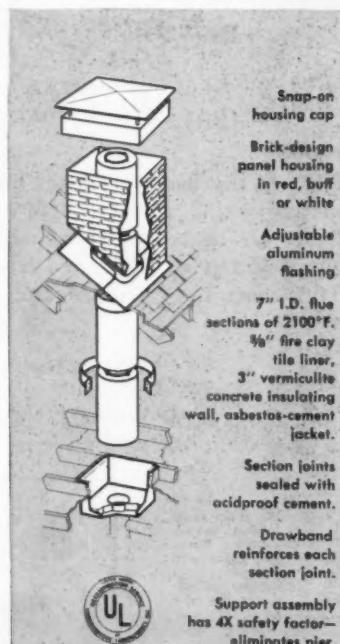
Because its masonry construction provides highest draft, the Van-Packer Chimney helps assure peak operating efficiency for your heating installation. High draft and efficient operation saves you money by cutting needless furnace service call-backs.

Profit on the entire heating system by installing the Van-Packer Chimney with your furnace. You'll be giving your customers the finest prefabricated chimney on the market today—the safe, permanent, attractive Van-Packer Factory-Built Masonry Chimney.

No job delays with Van-Packer, you get immediate delivery from your local Heating Jobber. See "Chimneys—Prefabricated" in Yellow Pages, or write Van-Packer for Bulletin RS-1-11.



Vertical cross-section of chimney shows Van-Packer's fire clay tile liner which isn't affected by corrosive flue gas acids.



Van-Packer's thick masonry insulating wall retains heat, assures highest draft.

No job delays with Van-Packer—immediate delivery to building site.



Van-Packer
FACTORY-BUILT MASONRY
Chimney

Van-Packer Company

Division of The Flintkote Company
P.O. Box No. 306, Bettendorf, Iowa
Phone: 5-2621

Also Manufacturers of
Van-Packer Fire Clay Tile Gas Vent

UL listed for all fuels, all home heating plants and incinerators, approved by major building codes.

new literature

(Continued)

struction, and moistureproof electrical connections. According to the manufacturer, installation can be completed in 14 minutes—*The Keeney Mfg. Co., Dept. AA, Newington, Conn.*

Metal Fireplace

DATA SHEET describes "Thulman" metal fireplace available in 30 and 36 in. front openings. Included are illustrations of raised hearth and floor installations, black glass and marble surrounds, and steel basket grate made of curved $\frac{5}{8}$ in. square steel bars—*The Majestic Co., Inc., Dept. AA, 733 Erie St., Huntington, Ind.*

Heating, Cooling Service Tools

CATALOG lists tools and equipment required to service "Frigidaire" air conditioning products. Included are illustrations and descriptions of oil furnace inspection mirrors, oil pump gages, wrenches, etc., as well as instruments such as sling psychrometers, smoke testers, leak detectors, velometers, manometers, and thermometers for taking flue temperatures—*Robinair Div. of Kent-Moore, Dept. AA, 28635 Mound Rd., Warren, Mich.*

Propeller Fans

REVISED BULLETIN A-109C contains new fan sizes not shown in the previous edition as well as revised air deliveries, specifications, performance data and dimensional drawings. Standard propeller, utility, "Lo-Noise," reversible and "Bi-Pass" duct fans, intake air units and unit heaters are shown—*Hartzell Propeller Fan Co., Dept. AA, Piqua, O.*

Valves for Cooling Applications

CATALOG ON VALVES, driers and strainers for air conditioning applications includes descriptions of standard products as well as a new series of "Golden Bantam" packless valves, "Abso-Dry" pressure sealed driers, liquid indicators and cast bronze strainers. Ask for catalog 102—*Henry Valve Co., Dept. AA, 3215 North Ave., Melrose Park, Ill.*

Water Heaters

BULLETIN 436, "Investigation of the Performance of Automatic Storage Type Gas and Electric Domestic Water Heaters," presents the results of performance tests of six gas and seven electric water heaters, ranging in size from 20 to 80 gal nominal tank capacity. Copies are priced at 60 cents—*Engineering Experiment Station, University of Illinois, Urbana, Ill.*

BUCKEYE



"Always Fit Glove-Tight"

"I like to use Buckeye Fittings because they are of uniform quality and always fit glove-tight. On installations they are less expensive as well as time saving. When my installers go out on a job with these fittings I have the assurance of a trouble-free installation."



J.R. Walker

J. R. Walker & Son
Heating Engineers
305-309-311 S. Chapin St.
South Bend, Indiana

DO A BETTER JOB . . . FASTER . . . SPECIFY BUCKEYE PIPES AND FITTINGS

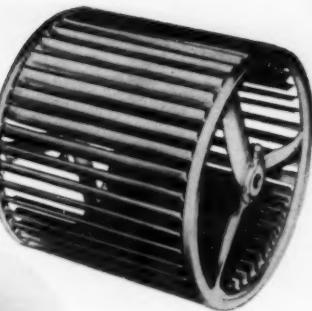
- Metal seaming adds rigidity to collars and fittings, assures firm, lasting pipe construction.
- Side take-offs are notched for easier connections.
- Special packing for easy identification, handling.
- Buckeye Snap-Tite pipes — save time, labor — just push sections together, edges interlock.

If your local jobber cannot supply Buckeye pipes and fittings, contact us directly for the name of your nearest Buckeye jobber.



BUCKEYE
FURNACE PIPE COMPANY
897 Ingleside Columbus 8, Ohio

7 WAYS BETTER



MORRISON END SUPPORTED WHEEL

1 MAXIMUM UTILIZATION

Under unrestricted inlet conditions the aerodynamic center and the exact geometric center are the same in both Morrison End Supported wheels and center plate wheels.

BUT when one inlet of the blower is MORE restricted than the other, the aerodynamic center only in an end supported wheel moves toward the restricted side to permit greater use of the unrestricted side. Center supported wheels, however, starve the restricted side of the blower, and the unrestricted side cannot compensate for it.



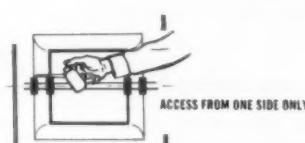
2 STABLE SUPPORT

Morrison End Supported Wheels are mounted stably on the shaft, eliminating rocking action that causes wheel wobble.



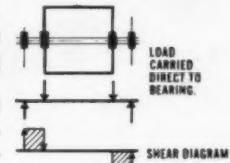
3 EASY MAINTENANCE

The Morrison End Supported Wheel offers easy oiling. Oil one end; then reach through the wheel to oil the other end. You need no complicated and costly oil tube extension.



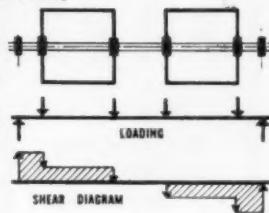
4 MINIMUM SHAFT LOADING

Morrison End Supported Wheels carry load directly to bearings, relieving strain and eliminating shaft whip. Center plate wheels put added strain on the shaft, causing bending, and shaft whip and requiring larger shafting.



5 UNIFORM DISTRIBUTION (for twin blowers)

Uniform load distribution permits using smaller shafting . . . prevents shaft whip . . . allows longer blower life . . . minimizes maintenance costs.



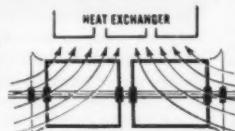
6 STRONGER FRAME

Sturdy end rings directly support impact on the ends of the Morrison End Supported Wheel and aid safe shipment. Impact on end of center plate wheel lacks sturdiness; distortion results.



7 EXTRA WHEEL ADVANTAGE

In special applications of two wheels for wide air distribution, the Morrison End Supported Wheel makes possible the greater distribution of air.



MORRISON PRODUCTS INC. 16816 Waterloo Rd., Cleveland 10, Ohio

*In Every Field
there's ONE Leader!*

*in Furnace
Cleaning the Leader
is the PULLMAN
NEVER-CLOG VAC!*

• The Pullman gets you in and out of the cellar *fast* because it's guaranteed never to clog under any conditions.

**COMPLETE
ACCESSORY
KIT
FREE**

With Your
Pullman
Never-Clog
Vac

- 27" metal crevice tool
- Power blower nozzle
- Handy scraper tool
- Flexible metal asbestos packed hose
- 10' x 1½ I.D. heavy duty hose



ACT NOW! MAIL THIS COUPON!

Pullman

THIS IS THE TIME
TO CLEAN-UP
Heating & Air Conditioning Installations!

AA-8

Pullman Vacuum Cleaner Corp.
25 Buick Street, Boston 15, Mass.

Rush me complete details on the Pullman Never-Clog Vac, so I can make more calls . . . more sales . . . more profits per day.

NAME _____
COMPANY _____
ADDRESS _____
CITY _____ STATE _____

new literature

(Continued)

Register and Grille

CATALOG INSERT illustrates "Rite Flo" return air grille and warm air register. Features listed include riveted construction throughout; triple ribbed blades; interlocking louvers; two stage control lever; and full cushion gaskets—Lenly Mfg. Co., Inc., Dept. AA, 844 Stanford Ave., Los Angeles 21.

Duct Systems for Corrosive Fumes

FOLDER discusses the use of corrosion resistant welded polyethylene duct systems in the handling of alkali and acid fumes. Photographs show the system—which includes duct, fittings, centrifugal fans, etc.—in operation. Two charts give data on properties of structural grade polyethylene and specifications of seamless centrifugally cast duct. Specific information on the fabricating of the systems is included—American Agile Corp., Dept. AA, P. O. Box 168, Bedford, O.

Press Brakes

BULLETIN 90 introduces Series IB press brakes designed to combine streamlined appearance with advanced power features. Featuring totally enclosed construction, press brake houses the entire drive inboard. Models are available in 30 and 50 ton capacities with overall bed lengths of 6 to 12 ft—Niagara Machine & Tool Works, Dept. AA, 683 Northland Ave., Buffalo.

Pyrometer

ILLUSTRATED DATA SHEET describes "Alnor" type 2300B pyrometer designed for measuring both surface and air temperatures. Ask for bulletin 2146B—Illinois Testing Laboratories, Inc., Dept. AA, 420 N. LaSalle St., Chicago 10.

Evaporator Coils

BULLETIN 249 covers model "TEU" upflow V-type and model "TEH" horizontal flat type evaporator coils. Also described is model "TAH" air handling blower. Illustrations include photographs of all three units as well as line drawings providing dimensional information—Typhoon Air Conditioning Co., Div. of Hupp Corp., Dept. AA, 505 Carroll St., Brooklyn 15.

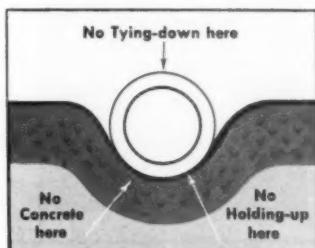
Corrosion Inhibitor

SIX PAGE FOLDER describes a corrosion inhibitor for closed circulating water systems. Included is a schematic drawing illustrating the use of the inhibitor in an air conditioning system—Hagan Chemicals & Controls, Inc., Dept. AA, Hagan Bldg., Pittsburgh 30.



Transite Air Duct keeps installed costs low!

**Strong! Corrosion-resistant! Transite lets you
eliminate costly concrete encasement**



Transite® offers you many advantages—many ways to save when you install modern slab-in-grade perimeter heating and air-conditioning systems.

Of all its money-saving advantages, many contractors say its strength and corrosion resistance are most important, because they make costly concrete encasement unnecessary. Both time and concrete are saved as your men position Transite directly on the prepared bottom. There's no need for special supports—and because Transite won't float—no need for anchoring.

All your men do is position duct and pour concrete.

Transite installs still faster because fittings can be made quickly, easily, right on the job—or ordered factory-made to your requirements.

To homeowners, Transite Air Duct offers permanent, trouble-free service. Made of asbestos-cement, it is fully corrosion-resistant inside and out. It won't flake or flap down or impede air flow...will never rot or give off odor.

Let us send you a free copy of Transite Air Duct booklet, TR-144A. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, 565 Lakeshore Road East, Port Credit, Ont.



Johns-Manville TRANSITE AIR DUCT

we hear that . . .

► TAMCO CORP., a newly established firm with offices at 1005 A St., San Rafael, Calif., has acquired the facilities of two furnace manufacturers — Barnes Heating Equipment Co., Inc., Long Beach, and the Henderson Furnace and Mfg. Co., Sebastopol, Calif. The "Barnes" and "Clipper" furnace brand names will be retained by Tamco. Tamco sales offices will be in San Rafael, Los Angeles and Oklahoma City, Okla. Officers of the new corporation are John Hendrickson, president; E. Spurling, vice president and general manager; Phillip A. Kennedy, secretary-treasurer; B. Clyde Watts, vice president, engineering and production; and Walter M. Boland, vice president, marketing. Present plans call for expansion of distribution to national sales by 1958.

► AUTOFLO CORP. has completed an 8400 sq ft addition to its manufacturing plant at 12085 Dixie, Detroit.

► THE AIRTEMP DIV., Chrysler Corp. is equipping all field engineers and technical representatives with a new and enlarged test kit which contains the most recent models of all instruments used in analyzing either the operational readiness or performance of cooling and heating systems. Representatives will use

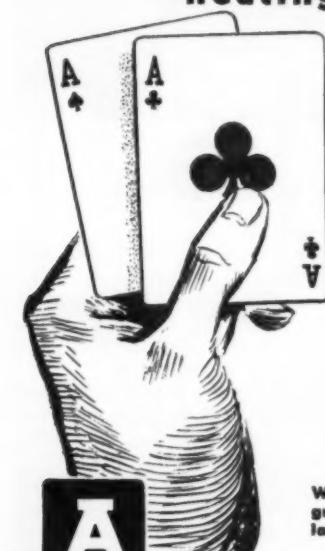
the kit in checking newly completed installations, for diagnosing the operation of existing systems and for dealer instruction purposes.



ROBERT GOLDSTEIN, Derby Coal and Oil Co., (left) and Sid Horton, of Heating Equipment Center, New Haven, Conn. distributor, discuss features of "AquaMagic" furnace humidifier

► THE WINNER of the "Bermuda Sweepstakes" furnace humidifier sales contest recently conducted by Viking Air Products Div., National-U.S. Radiator Corp., was Robert Goldstein, Derby Coal and Oil Co., New Haven, Conn. Mr. Goldstein was awarded first prize — a trip to Bermuda including a stay at the Castle Harbour hotel — for the best use of sales pro-

You can't beat this pair for combination heating and cooling perimeter systems . . .



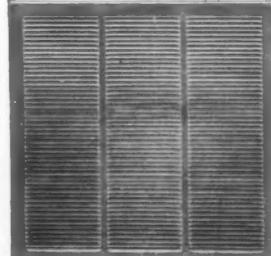
Try this combination in just one home with a basement and you'll be convinced of performance and economy far superior to any warm air system.

- Hot and cold zones are positively eliminated.
- Operates efficiently at all times, regardless of whether draperies or curtains are in open or closed position.

STYLE P-28 FLOOR DIFFUSER
Available in six sizes from 2 1/4 x 10 to 4 x 14.

STYLE A-05 FLUSH RETURN AIR GRILLE
Available in sixty one standard sizes.

We make a complete line of registers, diffusers and grilles for all types of heating and air conditioning installations. Write for your copy of our catalog.



The A & A REGISTER COMPANY
8327 CLINTON ROAD • CLEVELAND 9, OHIO • ATLANTIC 1-6166



When Bostitch stapling replaced spot welding and crimping, this Georgia manufacturer assembled

twice as many stackheads per hour

In a business as highly competitive as heating and plumbing equipment, a doubling of assembly speed can widen profit margins importantly.

This manufacturer found still more advantages of stapling over welding and crimping. With a Bostitch S13C foot-triggered metal sticher, both hands are free to position the work. Seams are cleaner, smoother and more secure. No precleaning and removal of flash. No heat or warp. No electrodes to clean. No touch-up.

Instead, the sticher punches its own holes in the 24-gauge metal, forms and inserts the staple and clinches it in one-fifth of a second! No operating experience is necessary.

Have you switched yet? Call your nearest Bostitch Economy Man for a demonstration or mail coupon for full information.

Fasten it better and faster with

**MAIL
NOW**

BOSTITCH
STAPLERS AND STAPLES

Bostitch, 948 Briggs Drive, East Greenwich, R. I.

Please have an Economy Man call on me
 Please send me special information about fastening sheet metal

We are presently using (please check)
 spot welding crimping riveting bolting

Name _____

Company _____

Address _____

City _____ Zone _____ State _____



**more good days
on the job with
NATIONAL Metal Rings**

- Right in true roundness*
- Right in price*
- Right on time for your job*

In your shop or out in the field, you can't afford to fool around with rings that don't fit. So why not turn to National, where rings are true — guaranteed to do the job without any waste of time or effort. National's in-stock service offers all the leg-out carbon steel ring sizes normally needed, ready for immediate delivery in any quantity. They're accurately rolled by experts to uniform curvature — furnished with or without bolt holes. Write today for National's list of stock sizes and discounts. You'll be following the lead of hundreds of large and small sheet metal shops everywhere.

National can roll to your specifications angles, channels, tees, rods, flat-bars, pipe and tubes.

Sheet metal fabricating and assembly work is another National specialty organized for YOU. Use it as your standby facility.



NATIONAL
METAL FABRICATORS

2138 South Sawyer Avenue, Chicago 23, Ill., Phone: Bishop 7-4255

we hear that

(Continued)

motion material contained in the division's "5600 AquaMagic" furnace humidifiers merchandising kit.

► FRANK M. MUTZ has been elected chairman of the board of Peerless Corp., Indianapolis, and Round Oak Co., Inc., Dowagiac, Mich. Harold W. Mutz, who has been vice president, was elected president. Other officers of the two corporations are J. W. Barrow, vice president and treasurer, and Tom Mutz and O. U. Mutz, vice presidents.

► THE ALUMINUM DIVISION of Olin Mathieson Chemical Corp. has opened a district sales office at 1330 W. Peachtree St., N. W., Atlanta. The office will be sales headquarters for a territory comprising Alabama, Florida, Georgia, North and South Carolina, and eastern Tennessee. It will be managed by John C. Spencer as district sales manager.

► THE THERMAC CO. has moved into its new factory in Corona, Calif., approximately 50 miles east of Los Angeles. The new building, comprising over 60,000 sq ft, will house engineering, laboratory, foundry, die casting and machining facilities as well as testing equipment.

► A NEW BOSTON DISTRICT OFFICE of Niagara Machine & Tool Works has been established in Waltham, Mass. Robert F. Gaylord has been appointed manager.

► PRESTON G. CREWE, vice chairman of the board, Webster Electric Co., recently was awarded an "Aladdin Lamp" for service to the Oil-Heat Institute of America. Mr. Crewe was also reelected to the institute's board of directors.

► BYRON E. JAMES, formerly executive vice president, was recently elected president of McQuay, Inc. He succeeds Roy J. Resch, who died June 13, 1957. Jay R. Resch and Kenneth R. Lundberg were elected vice presidents.

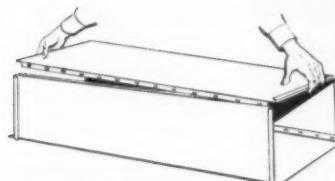
► ILLINOIS IRON & BOLT CO. has purchased the Radi-Heat Gas Burner Div. of the Burdett Mfg. Co. All tools, dies, equipment and inventory have been moved to the Carpentersville plant of Illinois Iron & Bolt Co.

► FLEXONICS CORP. plans the construction of a new plant on a 10 acre site at Santa Ana, Calif. The western regional office will move to the Santa Ana plant as soon as the facility is completed.

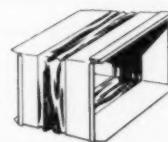
► DUC-PAC, INC. has licensed Christians Sheet Metal Works, Spencer, Iowa to manufacture Duc-Pac trunk and stack duct.

CHAMPION

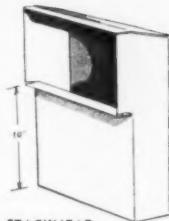
THE COMPLETE LINE OF PRE-FAB FURNACE PIPE AND FITTINGS
Saves Time and Makes You Money



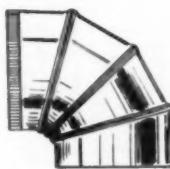
No. 510 SNAP-LOCK DUCT



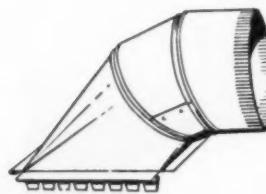
No. 503 CANVAS DUCT CONNECTOR



No. 561 STACKHEAD



No. 585 UNIVERSAL
ADJUSTABLE TAKE-OFF



No. 610 90° ANGLE
REGISTER BOOT

FIVE FOOTER

AVAILABLE THROUGH LEADING JOBBERS
CHAMPION FURNACE PIPE COMPANY
211 Eaton Street

Peoria, Illinois

CHAMPION

Manufacturers' Agents...

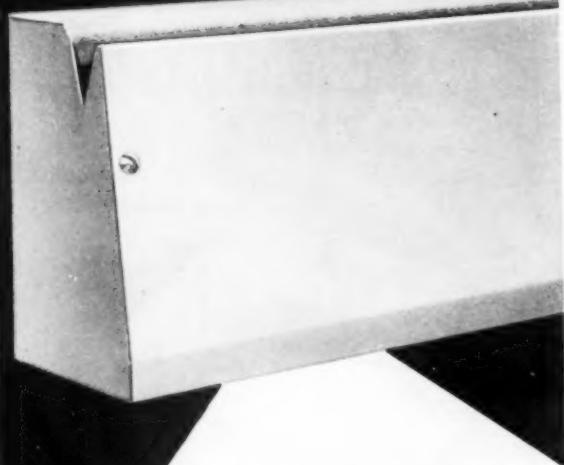
Are you interested in securing additional lines?

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their residential air conditioning, and sheet metal contracting products.

If you would like your name listed on our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

AMERICAN ARTISAN
6 North Michigan Avenue, Chicago 2, Illinois

FAN-AIR® BASEBOARD DIFFUSERS



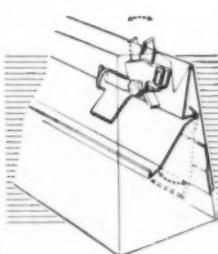
**STURDY - DENT RESISTANT
MADE OF 20 GAUGE STEEL
THREE SIZES: 3', 5', 8' lengths
EASY TO INSTALL**

With the Built-In Full-Length Balancing Damper

Regulated with lever; avoids need of adjustment in pipe.
Also without damper.

and Instantly Adjustable Boot Opening
Easy to position in center of room; adequate slot for joists.

Recommended For Heating and Cooling



Made of 20 gauge steel, diffusers are sturdy and dent-resistant; easily installed and positioned; smartly styled and finished in a neutral prime coat; attractively inconspicuous in the room. Small lever with set-screw adjustment regulates full-length damper.

**ASK YOUR
JOBBER**

DOWAGIAC
MICHIGAN

FAN-AIR COMPANY

we hear that

(Continued)

► THE FIRST ALL SHEET METAL MACHINERY show to be held in the state of Washington was presented recently at the Seattle warehouse of Pacific Metal Co. According to the company, the show attracted shop owners and operators from points as distant as central Montana and northern California. On hand to operate and demonstrate power and foot shears, press brakes, hand brakes, punch presses and all types of sheet metal forming equipment were representatives of the following manufacturers of sheet metal machinery: Bett Marr Mfg. Co., Beverly Shear Mfg. Co., Birdsell Mfg. Co., Dreis & Krump Mfg. Co., Engel Sheet Metal Equipment Co., Lockformer Co., Milwaukee Electric Tool Co., Niagara Machine & Tool Works, Peck Stow & Wilcox Co., Port City Machine & Tool Co., R C S Tool Corp., Thor Tool & Die Co., Whitney Metal Tool Co., W. A. Whitney Mfg. Co. and Wilder Mfg. Co.

► A ONE MILLION DOLLAR plant expansion program has recently been launched by Washington Steel Corp. The expansion plan includes enlargement of two of the shipping department buildings, the installation of a 48 in. wide continuous strip grinder, and the lengthening of three continuous strand annealing and pickling lines. Other equipment to be installed includes a new roll grinder, air compressor, an 18 in. slitting line, re-square shears and a new acid disposal plant.



THESE PREFABRICATED HOMES were designed with year 'round air conditioning in mind. Plans call for summer air conditioning of all homes in project within the next five years

► PREFABRICATED HOMES in a 120 house project located in Rapid City, S. Dak. have been designed for year 'round air conditioning. Ten percent of the homes, which range in price up to \$22,000, will be provided with summer air conditioning equipment at the time of erection and the others are scheduled to have cooling installed within five years. The heating-cooling equipment and water heaters are being supplied by Conditioned Air Div., Borg-Warner Corp.

► CARRIER CORP. has expanded unit heater production to meet rising sales demand. A new production line already is in operation at the Syracuse plant. The complete facilities include a press shop, metal cleaning and rustproofing equipment, paint spray booths and ovens to provide a baked enamel finish on all unit heater lines.

STACKED SHEET CUTTING SAVES COSTLY LABOR HOURS

Bett-Marr's amazing 3-wheel band saw is especially designed for sheet metal work and will cut 50 to 70 stacked galvanized sheets. Its 24 inch throat accommodates large sheets, and it is ruggedly built for trouble-free performance.

Quickly adjustable blade speeds from 100 to 3000 FPM allow easy cutting of many materials* without blade chatter. This versatile saw will friction-cut stainless steel, up to 12 gauge, with no distortion. Perfect blade control assures smooth radius and straight line cuts. Bett-Marr costs so little it will pay for itself quickly in any shop.

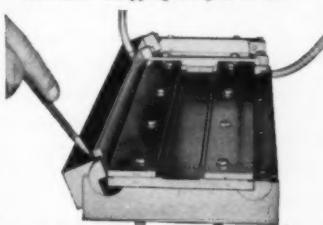
LOW COST 2-WHEEL SAW OUTPERFORMS COSTLY SAWS

Bett-Mar Model 14SM, shown below, will do everything its big brother (Model 24S) will do, except accommodate the larger sheets. In actual operation, side by side, it has outperformed saws costing 6 times as much. Model 14SM has a 13½ inch throat, as compared to the 24 inch throat of the larger model. It has the quickly adjustable blade speeds, from 100 to 3000 FPM, for cutting wood, metal, and plastics without blade chatter. Like its big brother, it is especially designed for stacked sheet metal cutting. Both saws have wheels designed so that band cannot slip off.



BETT-MARR TOOL FOR 24" INSIDE BENDS

The new, larger cheek bender makes bends up to 24 inches. Perfect bends along the entire length are assured by a two-way trunnion that keeps the bending bar in position at the starting point. The adjustable plate can be set for bends of $\frac{1}{8}$ " to $\frac{3}{4}$ ". Capacity is 24 gauge but 20 and 22 gauge spacers are available. Shipping weight: 77 lbs.



Write for information or ask your distributor



*Bronze, copper, steel castings and forgings, wood and plastics.

MODEL 24S

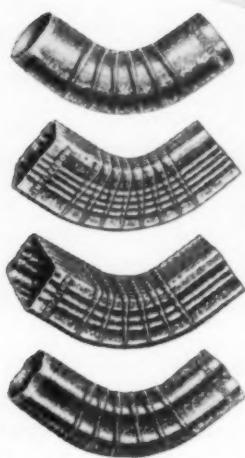
3 wheel
band saw
with 24"
throat.
Height 61",
depth 44",
22" wide,
table
20" x 22".



Cuts
50 to 75
stacked
sheets

Bett-Marr Mfg. Co. HOPKINS, MINNESOTA

Conductor L. Bow says:



Choose Cincinnati Elbows—
mechanically formed on
fully automatic machinery,
then hot-dipped in zinc for
longer life against rust.
Shaped and tapered
to fit any standard size
pipe. Choice of size,
angle, gauge—in copper,
aluminum, stainless
or galvanized steel.
Ask your jobber.



CINCINNATI ELBOW CO.

4730 Madison Road • Cincinnati 27, Ohio



OFFICIALS of Robertshaw-Fulton Controls Co. and Anaheim, Calif. community leaders prepare to break ground for new Western Research Center

► ROBERTSHAW-FULTON CONTROLS CO. has begun construction of a \$250,000 Western Research Center at Anaheim, Calif. Present at the ground breaking ceremonies were Thomas H. Jeffers, general manager, Western Research Center; Robert L. Wehrli, vice president and general manager, Aeronautical Div.; and Wilbur F. Jackson, vice president and general

manager, Grayson Controls Div., Long Beach. Also participating in the ceremonies were the mayor of Anaheim and members of the Anaheim Chamber of Commerce.

The company reports that executive offices now at Greensburg, Pa. will be relocated in early fall in Richmond, Va.

► A TWO MONTH SUMMER PROMOTION highlighted by a national display contest for dealers has been launched by the Williams Div., Eureka Williams Corp. Three dealers who take top honors in the display contest will win week long trips for two to Hawaii, Mexico City or Bermuda.

► TO EXPLAIN TECHNIQUES of fabricating and installing rigid vinyl sheeting to personnel of shops throughout the country, the plastic division of B. F. Goodrich Industrial Product Co. is bringing a demonstration unit into the shops and setting up "schools." The display is carried from city to city in a special panel truck. James P. Regan, in charge of the program, estimates that by the time he completes his 15 month tour he will have traveled 50,000 miles and conducted 1000 classes.

► THE POWERS REGULATOR CO. has moved its Minneapolis branch to new and larger quarters at 344 Taft St., N. E.

WHEN YOU BUY REGISTERS AND GRILLES
LOOK FOR THE KRUEGER
"DESIGN-AIR" CARTON

IT'S THE PACKAGE with the

PROFIT!



The #900 BASEBOARD DIFFUSER is a "job winner". Quality made . . . yet it gives you a real price edge. Count on KRUEGER'S DESIGN-AIR line to get you those "close" jobs.



Successful dealers everywhere are using the Krueger "Design-Air" line.

Reason: It's the really complete high quality line that's priced right to give you the biggest profits on the market today.

KRUEGER Air Conditioning Corp.
19 E. RILLITO • TUCSON, ARIZONA

wholesaler doings...



DEALERS examine some of the many products on display at Tiffin Art Metal Co.'s recent open house

► THE TIFFIN ART METAL CO. recently celebrated the formal opening of its new warehouse at 450 Wall St., Tiffin, O. Heating dealers and sheet metal contractors came from Ohio, Michigan and Indiana to participate in the celebration and view equipment displayed by some 40 manufacturers of heating and cooling equipment and sheet metal products. The new warehouse contains 65,000 sq ft of floor area.

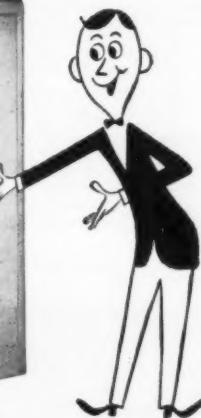
► FOR OUTSTANDING 1957 SALES ACHIEVEMENT, 10 Airtemp distributor principals will be awarded air conditioned Chrysler Imperials, according to Sydney Anderson, Jr., manager, air conditioning-heating sales. The Imperials will be presented this fall when the company holds its first national business conference, November 11-13, at Edgewater Park, Miss. Distributors participating in the program have been divided into five teams — the "Dialers," "Springtimers," "Anytimers," "Chryslers" and "Airtempers." A distributor to qualify as a possible recipient of one of the cars, must sell "100% of objective" in each of six cooling and heating major product categories. A special plaque signifying superiority of achievement will be presented to the heads of all firms attaining the 100% mark in all product classifications. Imperials will go to the principals of the two companies in each of the five team groups whose sales exceed 100% by the widest margin.

► NOLAND COMPANY, 556 Reynolds St., Augusta, Ga. will handle distribution of heating and cooling equipment for Perfection Industries, Div. of Hupp Corp. in parts of Georgia and South Carolina. B. T. Gilbert is manager of the Augusta operation.

► MARZULLO FURNACE SUPPLY CO., 2619 W. 95th St., Chicago has been named a distributor of residential and commercial air conditioners by Mercury Air Conditioning and Heating Div., Lord and Palmer, Inc. The Marzullo company will service the metropolitan Chicago trading area.



HEATING-COOLING UNITS to double your sales volume



OIL OR GAS
HEATING

PLUS

WATER OR AIR
COOLING

Gas Input—
78,000—650,000 BTU

Oil Output—
72,000—525,000 BTU

New Patten heating units are now available in 68 types and sizes . . . all the ultimate in design and engineering efficiency . . . proved by 56 years of heating experience. Oil burners UL approved; Gas burners approved by AGA Laboratories. Each unit carries the famous Patten 20-year guarantee.

Cooling capacities from two to forty tons

There's amazing versatility in the PATTEN cooling line! 1957 air cooled models in self contained units, remote coil or remote condenser types. Free-standing space coolers for commercial and industrial installations. Suspended air handlers available, too.

... write today for complete details on these new, low-cost combination units

The Quality Line at Competitive Prices

J.V. Patten Company
SYCAMORE, ILLINOIS, U.S.A.
ESTAB. 1898 • INC. 1928

every
furnace,
boiler,
and
air
conditioning
cleaning
problem
answered



This man could have been using inadequate equipment, but he's not. His boss knows that PREMIER's complete line of vacuums and tools is designed to satisfy the needs of any cleaning operation efficiently and economically.

Why not let PREMIER help you in your job? Send for

free details today!

Gordon L. Bowman, General Sales Manager
The PREMIER Company, Dept. 404
755 Woodlawn Ave., St. Paul 1, Minnesota • Midway 9-7002
35 Gerrard St. West, Toronto 2, Canada
Please rush me free details on PREMIER furnace, boiler, and air conditioning cleaning equipment and FREE information on how I can cut maintenance costs by choosing the right machine for my job!

Name _____
Address _____
City _____ State _____

wholesaler doings

(Continued)



MARVIN MAY (left) discusses new wholesaler selling plan with Erskine Traynham, John Wood Co. southern representative (center). At right is Fred Atchley

► C. M. McCCLUNG AND CO., distributor in the Knoxville, Bristol and Chattanooga area, recently sponsored a series of meetings for 50 salesmen in cooperation with John Wood Co. Marvin May, vice president and sales manager of the McClung company, introduced the John Wood automatic water heater line and presented the "Push-Button" selling plan. Fred Atchley, buying manager of the plumbing and heating department, presided at the meetings.

► THE VERNON S. TUPPER CO., 206 Tuck Bldg., Nashville, Tenn. has taken on Dravo Corp.'s line of gas and oil fired heating equipment. The Tupper firm will service dealers in 32 Tennessee counties.

► WEAKLEY-WATSON HDWE. CO., Brownwood, Texas is the new distributor of Rheem heating and cooling equipment in the Brownwood, Abilene, San Angelo and Big Springs trading areas.

► THE BOYD ENGINEERING CO., INC., with offices in El Paso, Texas; Albuquerque, N. M.; and Chihuahua, Mexico, has been named a distributor of Recold air conditioning products. James C. Boyd is president of the firm, with W. E. Boyd serving as vice president.

► HECKLER BROS., Pittsburgh wholesaler, will cover southwestern Pennsylvania for The Heil Co. Heckler Bros. has serviced the Pittsburgh area since 1905. Owners of the firm are Frank and Roy Heckler.

► F. E. TAPY, 7201 Minne Lusa Ave., Omaha, Nebr. will handle distribution of Dravo oil and gas fired heating units in parts of Nebraska and Iowa.

► THE LEWIE DAVID CO. of Sullivan, Ill. has been named a distributor of Rheem furnaces and "Rheem-air" central air conditioning equipment. Territory to be served includes central and southeastern Illinois.

How to balance air conditioning,
heating and ventilating systems
with the **NEW**



Color-coded pushbuttons put air velocity, air temperature and static pressure at your fingertips in the new Model 60 Anemotherm Air Meter. Developed by the Anemostat Corporation of America, this versatile, accurate instrument helps you balance and check any air system. It pays for itself through time saved on only one major job.

• Write for Bulletin 55.

AC 1338A

ANEMOSTAT CORPORATION OF AMERICA

10 EAST 39TH STREET, NEW YORK 16, N. Y.

AJAX
PRE-FABRICATED
DUCTS and
FITTINGS

the complete streamlined
line . . .
All Fittings now Shipped in
Cartons — Reduces Damage
and Distortion of Fittings

For extra profits, use **AJAX** Pipe and
Fittings . . . save installation time and
labor . . . fit tight and fast with **AJAX**
Automatic Snap Lock connections.

FORCED AIR and GRAVITY INSTALLATIONS:

- Precision Made
- Highest Quality
- Quickly Assembled

WRITE TODAY for line catalog giving full
data.

AJAX FURNACE FITTING CO.
216-220 E. Front St., Cincinnati 2, Ohio
Division of The Cincinnati Sheet Metal
and Roofing Co.

Zatko
WORLD'S LARGEST
MANUFACTURER OF
ONE-PIECE
STAMPED
PULLEYS

Long the favorite with
Original Equipment Manu-
facturers of Automobiles,
Heating and Air Condition-
ing Equipment.

**THEY COST
YOU LESS!**

Because they are made in **ONE-PIECE**
ZATKO ONE-PIECE PULLEYS —
Are Stronger, wear longer and cost
you less. Hundreds of thousands
now in use. Write for Literature.

Zatko METAL PRODUCTS CO.
20850 ST. CLAIR AVE.
CLEVELAND 17, OHIO

H&C
Kwik-Way
DAMPER
REGULATOR
SETS

Preferred
BY THE
VAST MAJORITY

**NO. 70 SET
FOR LARGER DAMPERS**

Has two retractable-bolt bearings. The easiest, most convenient and efficient set ever devised. Most economical, too, all things considered.

**NO. 69 SET
SINGLE BEARING
FOR SMALL DAMPERS**

Identical with No. 70 except that it is furnished with just one bearing.

HART & COOLEY
MANUFACTURING CO.
500 EAST EIGHTH ST.
HOLLAND, MICH.

IN CANADA
HART & COOLEY MFG. CO.
FORT ERIE, N. ONTARIO

ONE BLOW SETS BEARING SECURELY

Save Time...Labor...Material with BEVERLY metal cutting SHEARS

throatless SHEARS

Make any cut—straight, irregular, curved. Exclusive design permits turning work any direction while cutting. 4 models—cap. to 3/16".



slitting SHEAR

New "SS" Series—easier cutting with compounded linkage. 3 models—cap. to 1/2"; trimming capacity to 1/4" mild. See your Beverly Distributor. Write for FREE illustrated Bulletin.

Inside SLOTTER

Makes cuts up to 8" inside edge of sheet. Sharp, clean burr-free cuts always assured. Cap. 16 ga. High strength aluminum alloy body; H.C.H.C. blades.



Beverly SHEAR MFG. CO.
3020 W. 111th STREET • CHICAGO 43, ILLINOIS

AIR CONDITIONING is our SPECIALTY

Refrigeration and Electric Motors, Too!

OVER 10,000 ITEMS...

the world's most comprehensive listing of parts and supplies ... appear in the Harry Alter DEPENDABOOK No. 166 Summer, 1957 complete with illustrations, descriptions, prices and other useful information.

PARTS and Supplies



WHOLESALE ONLY

The HARRY ALTER CO., Inc.

1717 S. Wabash Ave., Dept. G, Chicago 16, Ill.

or visit branches

134 Lafayette St.
New York 13, N.Y.

122 Parkhouse St.
Dallas 7, Texas

Blidg. B, Unit B
690 Stewart Ave., S.W.
Atlanta 10, Ga.

merchandising ideas

► CARRIER CORP. has developed a program to encourage its distributors, dealers and their employees to install air conditioning in their own homes and places of business. According to George T. Long, director of marketing, Unitary Equipment Div., "The new ownership arrangement will enable dealers, distributors and their employees to obtain air conditioning equipment for their own use at a special price. It covers room, self-contained and residential air conditioning. We anticipate that it will not only result in increasing the number of installations among representatives of Carrier outlets but also spur other sales. Surveys have shown that when one air conditioner goes into service in a block, it tends to stimulate purchase by neighbors desiring to obtain the same benefits. In addition, dealer salesmen will have firsthand knowledge of the advantages of air conditioning to provide a solid base for their discussions with potential customers."

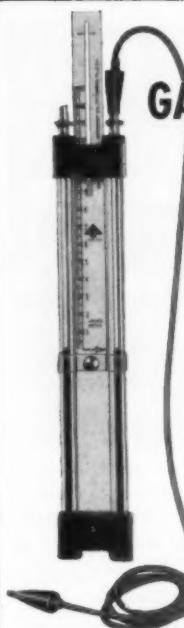
Products purchased under the plan must be retained by the buyer for at least one year from the date of installation, or until a new model is available.

► THE AIRTEMP DIV., Chrysler Corp. offers an eight page "Home Owner's Guide" for distribution among prospective purchasers of air conditioning. The guide lists the things a home owner should look for and ask for in air conditioning. Four pages of the booklet are devoted to questions that should be asked and answered when the purchase of air conditioning (either for summer or winter comfort) is being considered.

► A "PRIZES FOR PROSPECTS" BROCHURE has been prepared by Armstrong Furnace Co. for distribution by dealers among purchasers of Armstrong products. The brochure contains a list of 32 gifts the purchaser can get by recommending a prospect who buys either a furnace or an air conditioner. A referral card is included with space for the prospect's name which the customer can fill in and mail to the dealer.

► LENNOX INDUSTRIES INC. offers a direct mail program directed at prospects for small commercial air conditioning installations. Included in the package are a giant two color postcard, a broadside that opens up to explain advantages of various units available, and a triangular mailer which is an eight page booklet describing and illustrating different models being offered. The company will handle the mailing for dealers on receipt of lists or marked yellow pages from phone books. If the dealer prefers, quantities of the mailing pieces will be sent to him and he can mail them himself. Also available is a 12 page illustrated sales brochure describing the advantages of store type air conditioners which may be installed with or without ductwork.

BACHARACH GAS PRESSURE GAUGE



Gauge supplied with 4 ft. rubber hose and fitting for test connection.

Gauge with scale 0-7" W \$12.50 TRADE NET

Gauge with reversible scale — 0.15" W on one side, and 0.8.5 ounces per sq. in. on other side.

\$16.00 TRADE NET

- Body is transparent, high-strength plastic extrusion.
- Scale features easy readability; made of white plastic, with black scale divisions and numerals; 1/10" W scale divisions.
- Indicating Fluid of 1.9 specific gravity permits pressure readings to 1/10" W over entire scale on gauge of convenient size. Fluid is colored blue for visibility; is non-freezing to low temperature. Gauge is furnished filled ready for use.
- Shut-off Valves are conveniently opened or closed by rotation of knurled discs.
- Scale is adjustable up or down to permit direct reading of pressure.
- Blow-over seal automatically prevents spilling of fluid when gauge is subjected to pressure surges in excess of scale range.
- Body serves as reel for rubber hose.
- For convenient attachment of gauge to gas pipe an adjustable mounting clamp is available as optional accessory.

Ask your Jobber or write for Leaflet 830

**BACHARACH INDUSTRIAL
INSTRUMENT COMPANY**

200 N. Braddock Ave., Pittsburgh 8, Pa.

AWAITED BY THE HEATING INDUSTRY . . .
NOW IT'S HERE

THE OG-56 OIL-TO-GAS CONVERSION UNIT



A. G. A. TESTED
AND CERTIFIED

Developed by a famous name in heating—Banner Burner—for oil-to-gas conversion the OG-56 is superior in design and construction . . . installs quickly, easily and profitably. Now being manufactured with these outstanding advantages:

EASY TO INSTALL—fits through four-inch oil burner sleeve!

ONE PIECE CAST IRON CONSTRUCTION of venturi and flame spreader

—will not burn out.

M. H. CONTROLS—available in Powerpile or 24-volt system. An example of the quality components throughout.

Write for complete details.

BANNER BURNER CO.

227 EAST INDIANOLA AVENUE • YOUNGSTOWN 7, OHIO



TIME SAVING
E-Z-ON
DAMPER REGULATORS
PERMIT
INSTANT ASSEMBLY

(Shown—head piece of #27 E-Z-ON)

It's the little things that
make the Big difference!

Advanced design of E-Z-ON damper regulators permits on-the-job assembly with only a hammer — no drilling — no rivets. This 16 gauge steel regulator is simply positioned on the damper by sliding it over the scribed center line. The E-Z-ON accurately stays in position until a hammer blow drives the sharp prongs through the damper (E-Z-ON prongs will pierce 22 gauge metal.)

E-Z-ONS PROVED MORE PROFITABLE

Job Histories prove that your apprentice or journeyman can save two-thirds of their damper makeup time with E-Z-ONS.

M. A. GERETT Corp.

724 W. Winnebago, Milwaukee, Wis.

Stocked in CANADA by
THERMIDAIRE CORP.
7-9 Cumberland Street, Toronto

STYLE & SIZE
Famous E-Z-ON standard
design No. 27
Solid end tail piece, threaded
head piece and wing nut —
 $\frac{3}{8}$ " bearing.

Superior E-Z-ON
"Snap-Tite" Design No. 29
Tail piece with retractable
snap end bearing, threaded
head piece and wing nut —
 $\frac{3}{8}$ " bearing.

*Moncrief's PROMPT DELIVERIES**
Eliminates On-the-Job DELAYS!



*OVERNIGHT SHIPMENTS TO YOUR WHOLESALER

Moncrief, being strategically located in Atlanta at the Cross-Roads of the South, is in a position to make PROMPT DELIVERIES on everything you need in Pipe and Fittings for any type of heating or cooling system. Save Time and Money on Ducts, Registers, Grilles and Diffusers by ordering from your jobber Today.

Write for Free Catalogue.



MONCRIEF FURNACE COMPANY

676 Hemphill Ave., N. W., ATLANTA 1, GA.

A Complete Combustion Efficiency Test
In 30 Seconds With the NEW, Low-Cost

**Dwyer
COMBUSTION
TEST KIT (No. 1100)**



- SIMPLE TO USE
- LIFETIME ACCURACY
- PORTABLE
- COMPLETE
- INEXPENSIVE

Includes:

CO₂ Indicator Smoke Gage
Draft Gage* Slide Rule Computer
Stock Thermometer Megoclips
...and all necessary accessories and fittings

Here's everything you need for a thorough, professional job of combustion testing. This new DWYER Kit simplifies the testing of any installation . . . residential, commercial or industrial: gas, oil or coal fired. You can perform a complete analysis in less than 30 seconds . . . accurate to within $\pm \frac{1}{2}\%$ CO₂.

Handy, handsome metal kit—(also available with CO₂ Indicator alone)—is custom-fitted for all necessary parts and accessories.

*Draft Gage...famous DWYER Inclined Manometer. Continuously indicating type, permanently accurate —choice of ranges: 0 to $\frac{1}{4}$ ", 0 to $\frac{1}{2}$ ", or 0 to 1" water.

Write for complete information

F. W. DWYER MFG. CO.

P. O. BOX 373-F

MICHIGAN CITY, INDIANA



RADIANT

Sets the pace

Automatic Oil Burners

**ELECTRONICALLY
CONTROLLED**

- Electronic Combustion Safe Guard Controls
- 3 to 30 G.P.H. capacities
- Fully mounted & wired
- Less controls...more protection...greater flexibility
- Safe start—no puffs—no flare back—no unburned oil
- Successful record of installations



The speed and sensitivity of electronics makes possible immediate recycling along with fast and positive response. The Radiant Electronically Controlled oil burners are designed to meet the safety and protection required for industrial and commercial use.

Write for complete literature on all Radiant products.

RADIANT UTILITIES CORP.
8817 18th Ave., Brooklyn 14, N. Y.

appointments . . .

► HENRY R. PATAKY as director of sales for the Norman Products Co. Mr. Pataky has been in the heating and cooling field since 1931.



Henry R. Pataky



F. B. Winther, Jr.

► FREDERICK B. WINTHER, JR. as manager of sheet and strip sales at the Cincinnati steel service plant of Joseph T. Ryerson & Son, Inc. He formerly held a similar position at the company's Milwaukee plant. He takes over the Cincinnati post from William F. Dagon who has been transferred to the firm's new plant in Indianapolis. Robert Kreml, doing business as the Arizona Steel Co., has been appointed sales agent for carbon steel in the state of Arizona. The Arizona firm's headquarters are located at 5822 N. 10th Pl., Phoenix.



J. M. Haning



Howard H. Hildreth

► J. M. HANING as manager of home office sales and Howard H. Hildreth as manager of strip sales for Washington Steel Corp.

► JAMES H. FALLER as assistant sales manager of Tuttle & Bailey's air distribution division. For the past year Mr. Faller has been manager of the firm's Philadelphia office.

► CHARLES E. SMITH as assistant national service director of Robertshaw-Fulton Controls Co. Mr. Smith was formerly manager of the Product Service Div. of A. O. Smith Corp. He will make his headquarters at Youngwood, Pa.

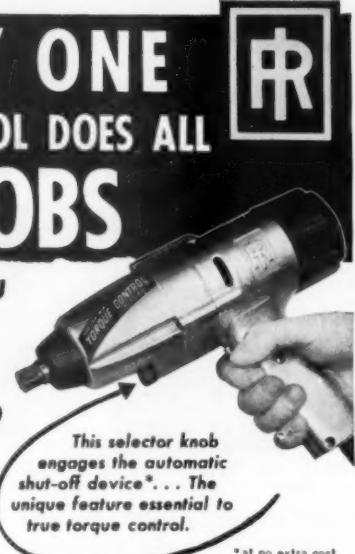
► MARTIN H. COLLINS as manager of Canton-Chicago Co., new Chicago agency of the Canton Stoker Corp. Mr. Collins will be in charge of sales engineer-

ONLY ONE IMPACTOOL DOES ALL 12 JOBS

and gives you
optional
TORQUE
CONTROL, too

- RUNS NUTS
- REMOVES NUTS
- DRILLS
- REAMS
- TAPS
- DRIVES SCREWS
- REMOVES SCREWS
- WIRE BRUSHES
- SAWS HOLES
- DRILLS MASONRY
- DRIVES AUGERS
- EXTRACTS STUDS

18-513



*at no extra cost

Now, get all the multi-purpose uses out of the world's most advanced impact wrench, plus the added advantage of positive torque control on nut running jobs. Saves time, money and work. You'll be amazed. Ask your I-R Distributor for a demonstration.

Ingersoll-Rand
11 Broadway, New York 4, N.Y.

for Quiet - Uniform -
Efficient Combustion
use **STEINEN**
**Oil Burner
NOZZLES**

with
Mirror-Finish
Tip

Your assurance of a quality product.
All nozzles individually flow tested.

WM. STEINEN MFG. CO.
41 Bruen St., Newark 5, N.J.

8474

Send for
Price List
A-3



THARCO



ASBESTOS FURNACE CEMENT

Won't shrink, crack or check. Sold in black or light gray. One lb. cans up to 350 lb. drums.

DAP

BLACK-TITE Caulking Compound

Tough, asphalt-base for extra protection. Won't sag or crack. In cartridges or bulk for gun application.



Fine products by

DICKS ARMSTRONG PONTIUS, Inc.

General Offices:
DAYTON, OHIO

(formerly The Dicks-Pontius Co.
and The Armstrong Co.)

Call your Jobber or write us

Whitney Punches . . .

NO. 2 PUNCH



Capacity $5/16$ " hole thru $1/4$ " iron. Length 23". Weight 14 lbs. Depth of throat 1-11/16". Punches and dies from $3/32$ " to $1/2$ " by $1/64$ ".

NO. 8-B PUNCH



Capacity $1/4$ " hole thru $1/8$ " iron. Length 18 $1/2$ ". Weight 7 $1/2$ lbs. Depth of throat 2". Punches and dies $1/16$ " to $7/16$ " by $1/64$ ".

Write for catalog and see
your local jobber.

W.A. WHITNEY MFG. CO.
636 RACE ST. ROCKFORD ILL.

FLANGES THE DUCT with Amazing Speed!

Less than 5 seconds on short
and lighter pieces . . .
Slightly longer on bulkier pieces

MAKES PERFECT DRIVE-CLEATS TOO!

The ONLY tool that does both.
A complete drive cleating tool . . .
no set-up time . . . no adjustments.
Handy to take out to the job when
not needed in the shop. Turns idle
time into production time. Flanges
any square duct up to 20 gauge.
Quickly pays for itself in time,
material and labor savings.

No. 12 Smith's Cleat Bender
(12" wide) . . . \$49.80*
No. 18 Smith's Cleat Bender
(18" wide) . . . \$78.60*
No. 24 Smith's Cleat Bender
(24" wide) . . . \$140.00

*F.O.B. Waukegan, Illinois
Prices subject to change
without notice



R. E. SMITH

1124 Elizabeth Avenue • Waukegan, Illinois

Zatko SILENTRIDE* V-Belts

for Air Conditioning Equipment
ABSORBS 24% MORE VIBRATION

Independent laboratory check proves this light duty V-Belt absorbs 24% more vibration and noise than next best "Low Vibration" Belt.

For Air Conditioning Equipment, Forced Air Furnaces, Window and Attic Fans — also — Washing Machines, Driers and light work-shop Equipment.

T M Pending

Zatko METAL PRODUCTS CO.
20850 ST. CLAIR AVE., CLEVELAND 17, OHIO
Zatko - World's Largest Manufacturer of stamped one-piece Pulleys

appointments

(Continued)

ing in the Chicago area for all of the firm's combustion equipment including stokers, combustion control and smoke control systems. Office of the Chicago agency is located at 800 N. Clark St.



C. Philip Pestow



William P. Marshall

► **C. PHILIP PESTOW**, formerly sales engineer in the Philadelphia district, as manager of the Philadelphia district office for Penn Controls, Inc. He has been with the company since 1940. William P. Marshall has been appointed sales engineer in the Dallas district. He will have offices at 11308 Glaser Dr., Houston.

► **ROBERT G. MIHAN** as a member of the sales and editorial staff of Wilding Picture Products, Inc. Working out of the Cleveland district office, Mr. Mihan will aid Ohio firms in the development of visual sales and service training programs.

► **K. O. RALPHS** as general sales manager for the Timken Silent Automatic Div., Scaife Co. Mr. Ralphs joined Timken in 1945 as district sales manager and was later regional manager in the Midwest and western Canada. Prior to his recent promotion he served as sales manager.



K. O. Ralphs



W. Les Werner

► **W. LES WERNER** as district manager for the Recold Corp. Mr. Werner, with headquarters in San Francisco, will cover northern California, Oregon, Washington and western Canada. For the past 10 years he has represented the firm in North and South Carolina, Georgia, Alabama and Florida.

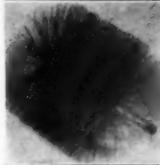
► **RAYMOND S. DOHERTY** as builder sales and promotion manager for the Heating and Air Condition-

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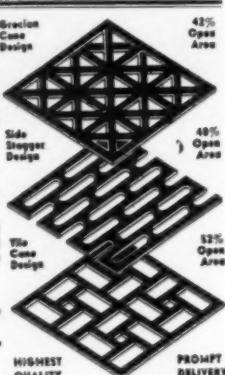
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appointments

(Continued)

ing Div., National-U.S. Radiator Corp. He will headquarter at the division's main office in Johnstown, Pa.

► E. C. WESTPHAL as assistant sales manager for Rolled Steel Corp. Mr. Westphal joined the firm in 1953.

► WILLIAM D. BOGH, La Mirada, Calif., as sales representative for the states of California, Nevada and Arizona for Skuttle Mfg. Co. Mr. Bogh will handle humidifiers and filters as well as "Vapoglas" humidifier plates.

Obituaries

T. Reid Mackin

T. REID MACKIN, 66, died July 3, 1957 in Alexian Brothers Hospital, Chicago. Mr. Mackin was a sales representative for G. W. Berkheimer Co., Gary, Ind. heating wholesaler. Before joining the Berkheimer firm in the latter part of 1955, he was with International Heater Co., where he served as a sales representative for more than 25 years covering the Chicago and Wisconsin areas. He is survived by his widow; a daughter, Mrs. Walter B. Hogan; and a son, Reid, Jr.

James C. Miles

JAMES C. MILES, who at one time served as vice president of the former Warm Air Furnace Fan Co. and later as president of the former Miles Equipment Corp., died July 11, 1957 at Lakeside hospital, Cleveland. Mr. Miles retired several years ago after many years in the warm air heating field. He was well known in the field as the inventor of a furnace fan and other heating devices. He is survived by his wife, a son and a daughter.



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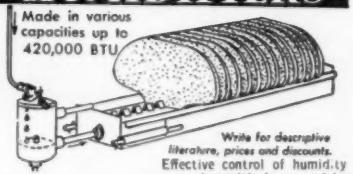


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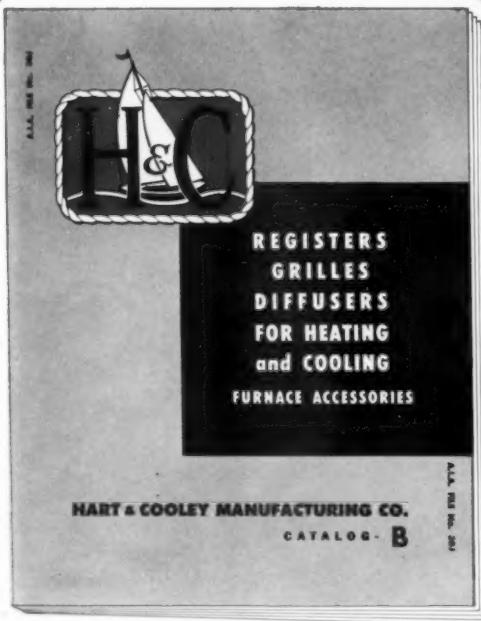
INDEX TO ADVERTISERS

Empire Ventilation Equipment Co.		M	Smith, R. E.
Evans Corp., The George			Snappy, Inc.
Excelsior Steel Furnace Co., The		130	Sonoco Products Co.
A & A Register Co., The		146	Standard Stamping & Perforating Co.
A-J Mfg. Co.		10	105
Arco Div., Robertshaw-Fulton Controls Co.			Steinen Mfg. Co., William
Advance Furnace Co.			159
Aerofin Corp.			Stewart Mfg. Co.
Air Conditioning Div. of American Standard		129	Stewart-Warner Corp., U. S. M.
Air Control Products Inc.		150	chine Div.
Air Reduction Sales Co.			Stic-Klip Mfg. Co., Inc.
Airtemp Div., Chrysler Corp.		133	Sundstrand Hydraulic Division
Ajax Furnace Fitting Co. Div. Cincinnati Sheet Metal & Roofing Co.		155	Surface Combustion Corp.
AllegHENy LudLum Steel Corp.		155	123, 124
Allen Co., Inc., L. B.		162	Sutton Corp., O. A.
Alter Co., The Harry		156	Swartwout Co., The
American Air Filter Co., Inc.		106, 107	Synchromatic Corp.
American Brass Co., The			
Anchor Div., Stratton & Terstegge Co.		140	
Anemostat Corp. of America		119, 155	
Arkton Mfg. Co.			
Armclo Steel Corp.			
Armstrong Fittings Co.		87	Tecumseh Products Co.
Armo Adhesive Tapes, Inc.		9	Temco Inc.
Auer Register Co., The		115	Tesco, Inc.
Auto Flo Corp.		120	Thermac Company
Automatic Humidifier Co.		125	Thermo-Base Div., Gerwin Industries Inc.
B			
Bacharach Industrial Instrument Co.		157	Thermo-Products Inc.
Banner Burner Company		157	Thor Metal Products Co., Inc.
Barber-Colman Co.			Thor Tech & Die Co.
Baso, Inc.			16, 17
Berger Bros. Co.		162	Titus Mfg. Co.
Bethlehem Steel Co.			Torridite Division, Cleveland Steel
Bett-Marr Manufacturing Co.		151	Products Corp.
Beverly Shear Mfg. Co.		156	Tuttle & Bailey, Div. of Allied
Black & Decker Mfg. Co., The			92, 93
Bostitch, Inc.		147	Thermal Corp.
Boston Machine Works Co.			
Brundage Co.		14, 15	
Buckeye Furnace Pipe Company		142	
C			
Carey Electronic Engineering Co.			
Metal Wool Div.			
Carrier Corp.		20, 21	United States Register Co.
Central-West Machinery Co.		163	United Sheet Metal Co., The
Century Electric Co.		113	U. S. Steel Corp.
Century Eng. Corp.			U. S. Steel Supply Div., United
Champion Furnace Pipe Co.		149	States Steel Corp.
Char-Gale Mfg. Co.			Utility Appliance Corp.
Chelsea Fan & Blower Co., Inc.			Utility Fan Corp.
Chevrolet Motor Div., General Motors Corp.			
Cincinnati Elbow Co., The		151	
Clarge Fan Co.		153	
Cleveland Humidifier Co.		163	
Coleman Co., Inc., The			
Conco Engineering Works			
Condensation Engrg. Corp.			
Copeland Refrigeration Corp.			
Crane Co.		31	
Crescent Tool Co.		135	
D			
Diamond Calk Horseshoe Co.			
Diamond Mfg. Co.		162	Parker-Kalon Div., General American
Dicks Armstrong Pontius, Inc.		159	Transportation Corp.
Dieckmann Co., Ferdinand, The		134	34
Dodge Corp., F. W.		127	Patten Co., J. V.
Dreis & Krump Mfg. Co.		138	153
Duro-Dyne Corp.			Peck, Stow & Wilcox Co., The
Dwyer Mfg. Co., F. W.		158	101
E			Peerless Electric Co., The
Electro-Air Cleaner Co.			Peerless Corp., The
Eigen-Air Cleaner Co.			41
Eigen Mfg. Corp.			Penn Controls, Inc.
Eigo Shutter & Mfg. Co.		12	89, 90
Emerson Electric Mfg. Co.		84	Perfection Industries, Div. of Hupp Corp.
F			Phlico Corporation
Fan-Air Company		150	Premier Co.
Field Control Div. of H. D. Conkey & Co.			Pullman Vacuum Cleaner Corp.
Flagler Corp., The			144
Follansbee Steel Corp.			Purolator Products Inc.
Fraser & Johnston Co.			111
Frigidaire Div., General Motors Corp.			
G			
Galvan Mfg. Co.			
Gem Clay Forming Co.		163	
General Automatic Products Corp.			
General Controls Company		95	
General Electric Company			
General Filters, Inc.			
General Gas Light Co.		85	
General Products Co.			
Gerritt Corp., M. A.		157	
Goodyear Tire & Rubber Co., Inc.		3	
Grayson Controls Div., Robertshaw Fulton Controls Co.		103	
Great Western Steel Co.			
Greenheck Fan & Ventilator Corp.			
Gustin-Bacon Mfg. Co.			
H			
Hall-Neal Furnace Co.		37	
Hart & Cooley Mfg. Co.			
Heil Co., The		88	Olsen Mfg. Co., C. A., The
Henry Furnace Co., The		114	39
Hussey & Co., C. G.		22	Ohio Valley Hardware Co., Inc.
I			91
Independent Register Co., The		159	Owens Coming Fiberglas Corp.
Ingersoll-Rand Company			
Inland Steel Co.			
Inland Steel Products Co.			
Insto-Gas Corp.			
International Heater Co.			
J			
Janitrol Heating & Air Conditioning Div., Surface Combustion Corp.		123, 124	Parker-Kalon Div., General American
Johns-Manville		145	Transportation Corp.
Johnson Ladder Shoe Co.		163	Patten Co., J. V.
Johnson Gas Appliance Co.			101
Jones & Laughlin Steel Corp.			Peck, Stow & Wilcox Co., The
Juniper Elbow Co., Inc.		163	Peerless Electric Co., The
K			Peerless Corp., The
Kalamazoo Furnace & Appliance Mfg. Co.		117	Perf. Ind. Div. of Hupp Corp.
Kass Hardware & Supply Co., Inc.		161	Phlico Corporation
Keeney Mfg. Co., The			Premier Co.
Kinetic Chemical Div., du Pont de Nemours & Co., Inc., E. I.			Pullman Vacuum Cleaner Corp.
Kirk & Blum Mfg. Co., The			Purolator Products Inc.
Krueger Air Conditioning Corp.		152	
Krueger Sentry Gauge Co.			
L			
Levow, David			
Lennox Industries, Inc.		24, 25	
Leslie Welding Co., Inc.			
Lima Register Company		110	Radiant Utilities Corp.
Little Giant Vaporizer Co.			Research Products Corp.
Lockformer Co., The			Reiner & Campbell Co., Inc.
L. O. F. Glass Fibers Co.			Republic Steel Corp.
M			Revere Copper & Brass, Inc.
Maid-O-Mist, Inc.		162	Reznor Mfg. Co.
Malco Products			Rheem Mfg. Co.
Majestic Co., Inc., The			Royal Products Co.
Mastercraft Supply Co., Inc.		128	Ryerson & Sons, Inc., Jos. T.
Maxwell Steel Company			161
McQuay, Inc.			Sequoia Mfg. Co.
McQuay-Norris Mfg. Co.			Skil Corp.
Meyer & Bro. Co., F.			Skuttle Mfg. Co.
Mid-Continent Metal Products Co.		132	Smith Corp., A. O.
Miller & Doing		162	82
Milwaukee Electric Tool Corporation			
Minneapolis-Honeywell Regulator Co.		35, 36, 97	
Moncrief Furnace Co.			
Morrison Products, Inc.		157	
Morrison Steel Products, Inc.		143	
Mueller Climatrol Division of Worthington Corp.		139	
N		5	
National Lock Company			
National Metal Fabricators		148	
National Modulation Co.		163	
National-U. S. Radiator Corp.			
Nelson, Herman Div. of American Air Filter Co., Inc.		106, 107	
Niagara Furnace Div., Forest City Foundries Co., The			
Niagara Machine & Tool Works		81	
Nixalite Company of America			
Normate Products Company		99	
Nu-Way Corp.		6	
O			
Olsen Mfg. Co., C. A., The			
Ohio Valley Hardware Co., Inc.			
Owens Coming Fiberglas Corp.			
P			
Parker-Kalon Div., General American Transportation Corp.		34	
Patten Co., J. V.			
Peck, Stow & Wilcox Co., The		101	
Peerless Electric Co., The			
Peerless Corp., The		41	
Penn Controls, Inc.		89, 90	
Perfection Industries, Div. of Hupp Corp.			
Phlico Corporation			
Premier Co.		154	
Pullman Vacuum Cleaner Corp.		144	
Purolator Products Inc.		111	
Quickdraft Co.			
Quiet Automatic Burner Corp.			
R			
Radian Utilities Corp.		158	
Research Products Corp.			
Reiner & Campbell Co., Inc.		163	
Republic Steel Corp.			
Revere Copper & Brass, Inc.			
Reznor Mfg. Co.		128	
Rheem Mfg. Co.		32	
Royal Products Co.		161	
Ryerson & Sons, Inc., Jos. T.		42	
S			
Schaefer Brush Mfg. Co.		161	
Sequoia Mfg. Co.			
Skil Corp.		109	
Skuttle Mfg. Co.			
Smith Corp., A. O.		82	
Smith, R. E.			
Sonoco Products Co.			
Standard Stamping & Perforating Co.			
Stanley Works, The			
Steinen Mfg. Co., William			
Stewart Mfg. Co.			
Stewart-Warner Corp., U. S. M.			
Stine Div.			
Stic-Klip Mfg. Co., Inc.			
Sundstrand Hydraulic Division			
Surface Combustion Corp.			
Tecumseh Products Co.			
Temco Inc.			
Tesco, Inc.			
Thermac Company			
Thermo-Base Div., Gerwin Industries Inc.			
Thermo-Products Inc.			
Thor Metal Products Co., Inc.			
Thor Tech & Die Co.			
Titus Mfg. Co.			
Tortidite Division, Cleveland Steel Products Corp.			
Tuttle & Bailey, Div. of Allied Thermal Corp.			
U			
United States Register Co.			
United Sheet Metal Co., The			
U. S. Steel Corp.			
U. S. Steel Supply Div., United States Steel Corp.			
Utility Appliance Corp.			
Utility Fan Corp.			
V			
Van Packer Co. Div. of Flintkote Co.			
Viking Air Products Div. of The National—U. S. Radiator Corp.			
W			
Walter Mfg. & Sales Corp.			
Wallace Co., William			
Washington Steel Corp.			
Waterloo Register Co.			
Waterman-Waterbury Co., The			
Weirton Steel Co.			
Westinghouse Electric Corp., Air Conditioning Div.			
Wheeling Corrugating Co.			
White-Rodgers Co., Outside Back Cover			
Whitney Mfg. Co., W. A.			
Whitney Metal Tool Co.			
Williamson Co., The			
Wilson, Inc., Grant			
Windmaster Corp.			
Wiss & Sons Co., J.			
Wood Co., John			
Wysong & Miles Co.			
XXth Century Heating & Ventilating Co.			

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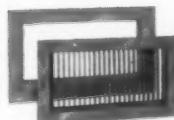
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